This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

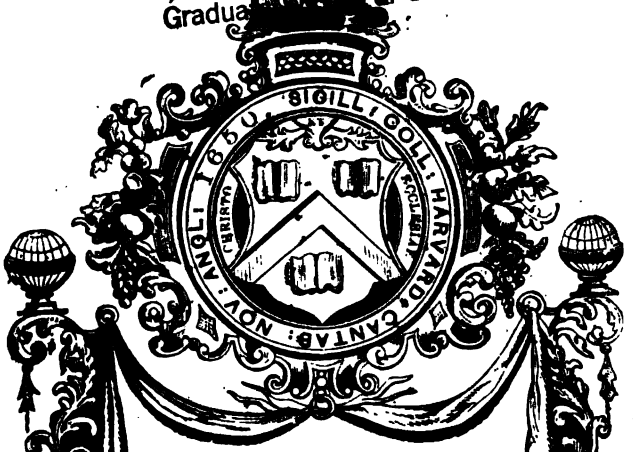
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

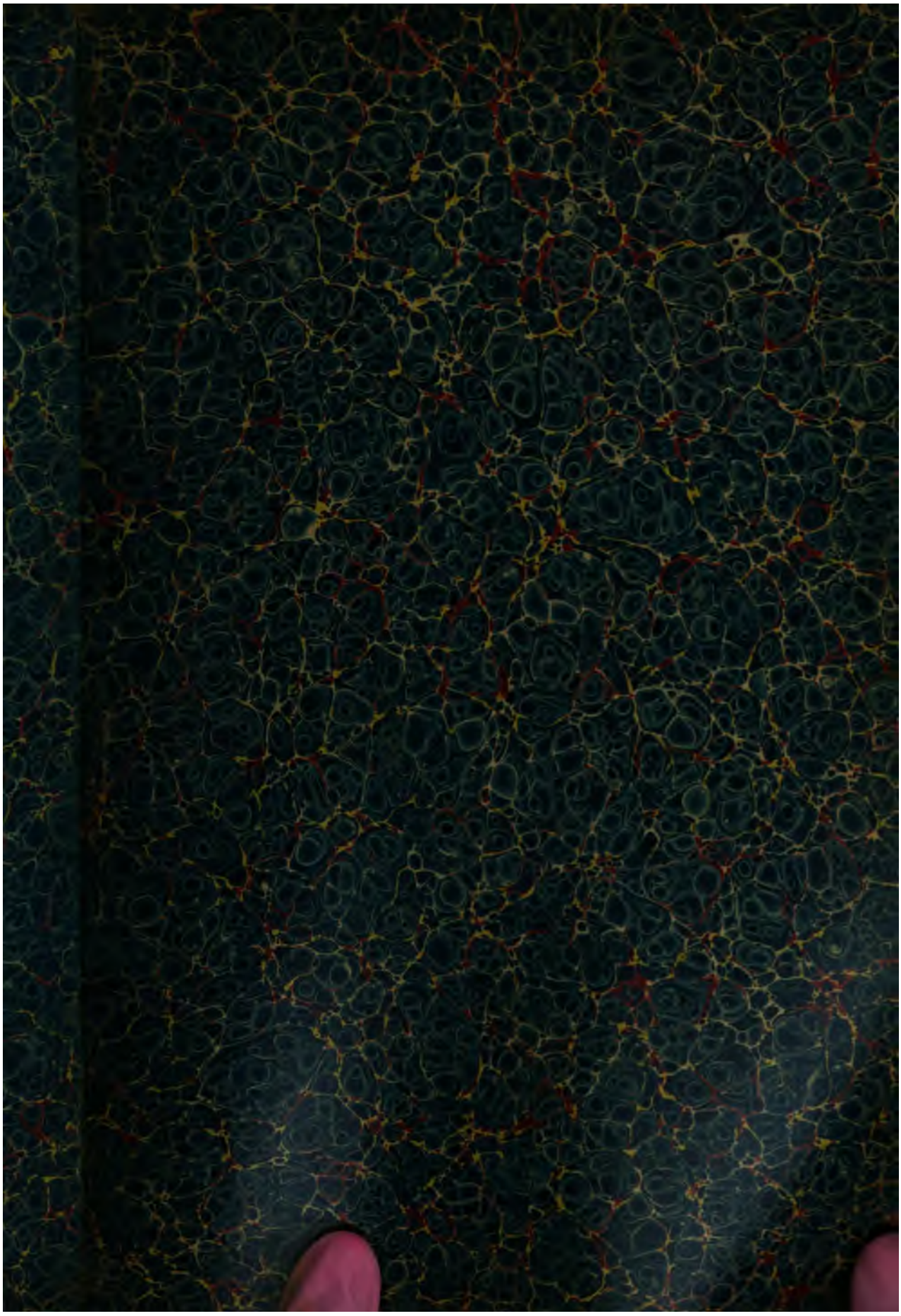
Lan 207
HARVARD UNIVERSITY
Library
of Design
Feb. 1885.



The Gift of the

Editor.

3 Jan. – 1 Dec. 1884.



THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO

HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

EDITED BY

THOMAS MEEHAN,

STATE BOTANIST OF PENNSYLVANIA,

FORMERLY HEAD GARDENER TO CALEB COPE, ESQ., AT SPRINGBROOK, AND AT THE BARTRAM BOTANIC GARDENS, NEAR PHILADELPHIA. GRADUATE OF THE ROYAL BOTANIC GARDENS, KEW (LONDON), ENGLAND. MEMBER OF THE ACADEMY OF NATURAL SCIENCES. AUTHOR OF "AMERICAN HAND-BOOK OF ORNAMENTAL TREES," "FLOWERS AND FERNS OF THE U. S.," ETC.

VOLUME XXVI, 1884.

PHILADELPHIA:

CHARLES H. MAROT, PUBLISHER,

No. 814 CHESTNUT STREET,

1884.

ILLUSTRATIONS.

Portrait of W. D. Brackenridge, ... Frontispiece.

A

Alsophila Rebeccæ, ... 236
Anthurium Ferrierense, ... 331
Anthurium Rothschildianum, ... 331

B

Begonia florida incomparabilis, ... 41
Benches for Greenhouses, ... 138
Boy-power Pump, ... 324

C

Calodendron capense, ... 311
Crossandra infundibuliformis, ... 301
Croton cordatus tortilis, ... 171
Croton illustris, ... 268
Cypripedium michochilum, ... 280

D

Dendrobium Pierardi, ... 134
Dieffenbachia splendens, ... 42
Double Bulb Glass, ... 295

E

Epacris onosmæflora flore-pleno nivalis, ... 202
Epiphyllum truncatum, ... 234
Epipremnum mirabile—"Tonga," 341
Euadenia eminens, ... 371
Eucharis Sandersi, ... 248
Exacum affine, ... 24

G

Gnaphalium decurrens, ... 102

I

Impatiens Sultani, ... 176

L

Lavatera arborea variegata, ... 150
Lilium Phillipinensis, ... 246

M

Mosaic Flower Beds, ... 6

N

Nepenthes Mastersiana, ... 107
Nepenthes northiana, ... 11

O

Odontoglossum vexillarium Rubellum, ... 361
Orchid Blocks and Pans, 3 cuts, ... 74
Osmunda Japonica corymbifera, ... 168

P

Peronospora sparsa, ... 212

R

Rancocas Raspberry, ... 307
Rheum collinianum, ... 70
Rhododendron, Pink Beauty, ... 214
Root, An Abnormal Growth, ... 310

S

Sarracenias, Hybrid, ... 54
Statice Suorrowi, ... 7

T

Transportation of Cut Flowers, 3 cuts, ... 122

W

Weigela floribunda, ... 262
White Plume—New Celery, ... 13
Wilbrandia drastica, Mart., ... 87

Z

Zygophyllum sedeni, ... 121

JAN 3 1884

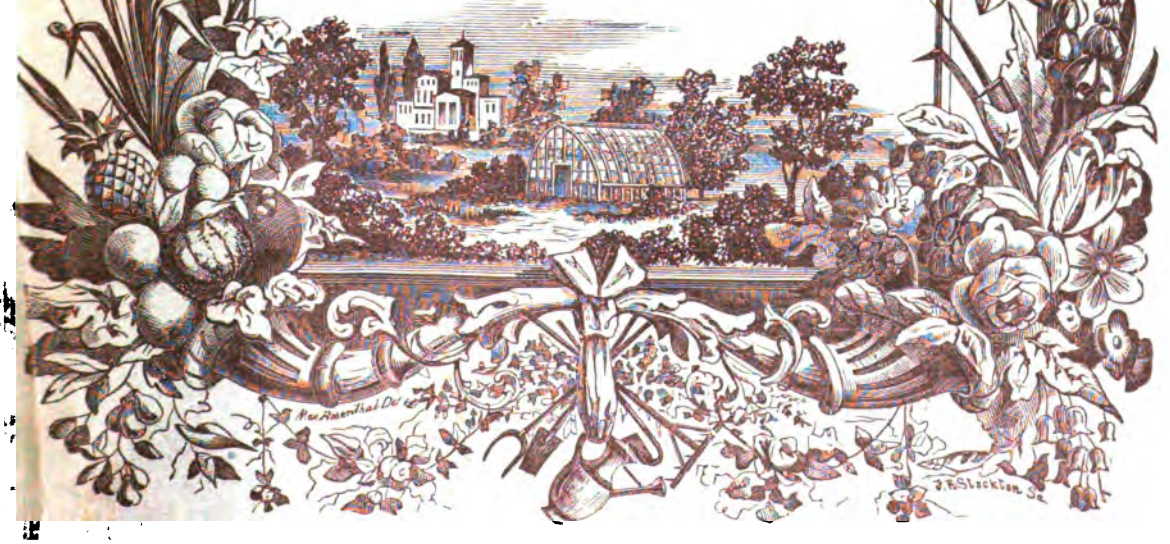
CAMBRIDGE COLLEGE LIBRARY MASS.

Harvard College Library

THE GARDENERS' MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

Vol. XXVI. No. 301.
(Combined Magazines, Thirty-ninth Year.)
JANUARY, 1884.
PUBLISHED BY CHARLES H. MAROT,
814 Chestnut Street, Philadelphia.



JAN 3 1884

THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

VOLUME XXVI. JANUARY, 1884. NUMBER 301.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

When is the best time to prune my overgrown bushes? asks a correspondent. The worst time to prune is just after the new growth has pushed for the season. It has been said, prune whenever the knife is sharp, but even this generally true remark does not hold good when a tree is covered with a mass of immature foliage. Nothing weakens a plant more than to be shorn at that time. In some parts of the country, vegetation will have pushed by the time this has reached our readers, but if pruning has been neglected, a thinning out of the branches, to induce a good shape, may be resorted to, if indeed such trimming may not be called a form of pruning. Elsewhere, any species of pruning that may be desirable may yet go on, and pruning should be completed as soon as possible. Some judgment is required in pruning flowering shrubs, roses, &c., although it is usual to act as if it were one of the most common-place operations. One of the most clumsy of the hands is commonly set with a shears, and he "goes through" the whole place, clipping off everything indiscriminately. Distinction should be made between those flowering shrubs that make a vigorous growth, and those which grow weakly; and between those which flower on the old wood of last year, and those which flower on the new growth of next season, as the effect of pruning is to force a strong and vigorous growth. Those specimens that already grow too strong to flower well, should be only lightly pruned; and, in the same individual, the weakest shoots should be cut-in more severely than the stronger ones. Some things, like the mock oranges, lilacs, and others, flower on the wood of last year. To prune these much now, therefore, destroys the flowering; while such as Altheas, which flower on the young wood, cannot be too severely cut-in, looking to that operation alone.

Hedges that have not had their winter dressing should be attended to. If the remarks we have before made on hedges have been of service through the summer, there will be very little now to do. We have said that pruning in summer weakens a plant, while pruning in winter strengthens it; and so, as hedges naturally get spoiled by growing vigorously at the top, and weakly at the sides, they should be severely summer-pruned at the apex, and winter-pruned near the base. Now will be the time to see to the latter, taking care not to make it too narrow. A good hedge should be nearly four feet wide at the base, and be cut into a point at the top.

In pruning roses, the fall-blooming kinds, which

flower on the new growth, may be pruned as severely as we wish; in fact, the "harder" they are cut-in the better. In this class are the Noisette, Bourbon, Tea, China and Hybrid Perpetual and Perpetual Moss. Without considerable experience, it is difficult for the amateur to distinguish these classes. The best way to get over the difficulty is to obtain the catalogues of the principal rose-growers, in which each kind is usually classified. Amateurs should pay more attention to the scientific—if we may so term it—study of the rose, and its classification and general management. No class of flowers is more easily understood, and no one affords so rich a fund of perpetual interest.

For making hedges the whole world has not produced anything so cheap and on the whole so valuable as the Osage Orange and Honey Locust. By running a few strands of wire through as the hedge grows, it will be very easy to make it easily protective. At Salt Lake City, the past summer, the Editor saw the garden hedge of Mayor Jennings so treated, and though the Osage plants were kept quite low, the hedge seemed a perfect protection to the plants within. There are many deciduous shrubs which make good hedges, and are very beautiful, though none near as cheap as the two named. Any strong growers which stool well make good hedges. The Silver Thorn, a species of Elæagnus, introduced by the writer of this some years ago, still gives entire satisfaction, as also does Berberry and Pyrus Japonica. They are natural self-thickeners, continually sending up shoots from the collar, or near the ground. For evergreen hedges, there are many good things, but among the cheap and effective ones Arbor Vitæ, Hemlock Spruce and Norway Spruce stand in about the order named.

Hyacinths, or other hardy bulbous roots that may not have yet been planted, may still be put in where the ground continues open. The beds of all such bulbs should be slightly protected with manure or litter, and be carefully watched for mice and vermin, which are likely to avail themselves of the shelter and feed on the roots.

Lawns that are impoverished by several seasons' mowing, will be improved by a good top-dressing. This may be applied any time after the leaves are gathered up, and before the snow falls. Soot, wood-ashes, guano, or any prepared manure, is best for this purpose. Barnyard manure is objectionable, as generally containing many seeds of weeds.

Manure for flower-beds, borders, &c., may be hauled convenient to where it is likely to be wanted in spring; many spread it on at once; but if the soil is frozen very thick, it prevents the early thawing of the soil in the spring, and so no time is gained.

Very small plants in borders or on the lawn, or larger plants that may have been set out the past season, should be mulched with anything that will prevent the ground thawing, and so, the plant "drawing out." Most readers have done this in the fall, but there is good to be done by it yet by those who have neglected it till now. Keep a sharp look-out for mice under the litter, however, where it is wise from the value of the specimen to run no risk; brown paper, afterwards tarred, may be wrapped around the stems as far as the litter covers them.

COMMUNICATIONS.

GLIMPSES OF THE AMAZON, NILE AND OTHER RIVERS.

BY WILLIAM T. HARDING.

When the botanist informs us that the number of Phænogamous, or flowering plants, in the world is estimated at 95,620 species, we naturally feel amazed at the fact. And when the many thousands of Cryptogamous, or flowerless plants are added, such as sea-weeds, lichens, mosses and ferns, horsetails, or scouring rushes, fungus', &c., we are still more astonished. Yet all these, in the economy of nature, have some specific or general purposes in the realms of the vegetable kingdom, so wonderfully diversified with the many peculiar features of plant life. From the little grey lichen, clinging for life to the dead tree trunks, to the mighty ligneous monarchs of the primeval forest of ponderous and majestic proportions, are many intervening phases of vegetal forms. And not alone are we confined to terra firma, with all its vast organic treasures. To satisfy our yearnings for the useful and beautiful, as ingenious Nature in her admirable designs has fashioned them for our delectation and use, the seas also teem with strange examples of algæic vegetation, from the microscopical or infinitesimal, and tiny, filiform, leafless objects, to those of higher or more developed types, hundreds of feet long. Oceanic jungles, or dense submerged forests of algæ, or sea-weed, extending for many miles in the sea's wide domain, often filled the ancient mariner's mind with fear, when impeding the progress of the slow-sailing craft of the olden time. Since then, scientific research has discov-

ered valuable medicinal properties in sea-weeds; besides their use in agriculture and the arts, there are many edible kinds.

Leaving the many mysteries of the sea unsolved, let us turn to what we can more readily understand of the several kinds of flora, as we find them in the rivers, lakes, ponds, or brooks, where we can better see and admire them.

To reach the Nile, Amazon, or other distant rivers is often difficult and dangerous, and for the mere sight-seeing man, unnecessary; especially when similar scenes are before him at home, where, while inhaling the perfumes of the land of the sun, he may form proper ideas of what they really are, in distant lands. And when the readers are told they may indulge their floral fancies, or botanical tastes, with Amazonian wonders, or Nilotic scenes, at Mr. E. D. Sturtevant's, Bordentown, N. J., I feel assured they will thank me for the agreeable information.

To those who are unable to enjoy the privilege the writer had, of a close inspection of the many interesting varieties of aquatic plants at the above-named place, I will endeavor to give a brief outline of what I saw while there.

The species we will first notice is botanically known as Nymphæa, appropriately derived from nymph, a water nymph, as from their well-known beauty and aqueous habitats they well deserve the name. At the head of these the majestic Victoria regia, the wonder of the Amazon and its tributaries, first claims our attention. Even now, at this day, it still excites as much admiration in the beholder as it did in the savan Schomburgk when his keen eyes were first fixed upon it in its native waters years ago. This floral paragon, with its immensely large salver-shaped, dark green leaves of from twelve to eighteen feet in circumference, with its gigantic rosy-white magnificent flowers a foot or more across, as they float on the surface of the water, are as wonderful as they are grand. The spacious tank in which it revels is out of doors, and in the early season is heated with a coil of hot-water pipes, and which seems as well adapted for it to flourish in as is its native river. At least one would suppose so, judging from the luxuriance of it and a number of other species, native and foreign water-plants, which together with it share the same element.

For instance, fine Cyperus specimens of from five to six feet high, of the peculiar Papyrus antiquorum, from the Nile, the oldest of historical rivers, the flower stems of which, when properly prepared, afford the durable byblus or material upon which the ancient Egyptians recorded important events thousands of years ago, and which the erudite scholar readily deciphers now. Its stems the abject natives twist into ropes, and also use the sweet roots as food. And of no less interest, beside it grows the famous Egyptian Lotus, Nelumbium speciosum, which, in remote times, produced the large seed known as the Sacred Bean of the Egyptians. Its striking appearance waving above the smaller, though not less interesting aquatics, arrests attention whenever seen. And especially so when presenting its beautiful sweet-scented, large, rosy-pink flowers, like magnificent scepters above the elevated leaves which surround these noble flowers. And when we remember the dreamy Lotus eaters served up the large edible seeds at their festivals, and as did these ancient people then, so do the present natives of India still use them as food. And it is not to be wondered at when we hear of the miserable superstitious people of that idolatrous land worshiping them. It is worthy of notice, that shortly before the Indian mutiny broke out in 1857, the conspirators secretly passed a number of Lotus seeds, concealed in native cakes, to the Sepoy soldiers wherever quartered, to which was imputed some mysterious meaning only understood by the mutineers. In India, China and Africa, where it is indigenous, the native artists seem to make them conspicuous figures in their rudely-executed landscape pictures. Its congener, N. lutea, is a yellow-flowered beauty, a native of this country, but is fast disappearing from where it used to grow, which is much to be regretted. But fortunately Mr. S. has it in abundance.

Among this choice collection of aquatics is the fragrant snow-white garland flower, Hedychium acuminatum, while near by grows the singularly perforated and deeply incised large-leaved Monstera deliciosa, in bloom. From its yellow drooping spatha protrudes the erect spadix, upon which, later on, its delicious fruit will appear. The abnormal-looking water fern, Ceratopteris thalictroides, which has more the appearance of a Rhipsalis than a fern, is one of the most curious and interesting plants in the aquarium, and well deserves a place therein. Besides Trapa natans, which produces an edible fruit not unlike a sweet chestnut in flavor, there were the pretty Limnocharis Plumierii, L. Humboldtii, two lovely aquatics, which, with the porcupine rush, Scirpus Tabernæmontani, Pisita stratiotes, or water lettuce, is among the many singularly formed water plants, a real curio, which modestly seeks seclusion and shade.

The same may be said of the interesting little gem (so like a floating Selaginella), Azolla Carolineana. Its fit companion is the wee water lily-like Limnanthemuum lacunosum. Equally interesting, too, is the bulbous-rooted water-loving Aponogeton distachyon. Its jet-black anthers give the pure white richly-scented flowers a remarkable appearance.

Amidst all this interesting variety appears the royal purple water lily, Nymphæa Zanzibarensis. This inimitable flower is one of the most beautiful and odoriferous of this lovely genus. Its large, floating leaves, from among which its charming blue or purple flowers emerge, is marvellously beautiful, and might appropriately be termed the grandest of the grand.

Outside, around the margin of the tank, is well covered with a variety of sub-aquatics and other appropriate plants, the tropical appearance of which add much to the interesting scene which, from center to circumference, is a perfect picture of floral beauty.

Although startling at first sight, and probably dangerous when in close proximity, yet in perfect consonance with the surroundings, would be the sight of some ferocious old crocodiles, unshapely hippopotamus, or sinister-looking rhinoceros or other amphibious monsters, if they had appeared, so perfectly natural seemed the leafy retreat for their lairs. But no hidden dangers lurk there. Pretty little gold and silver carp, instead, innocently dart about the pool, apparently playing at hide and seek among the foliage and flowers.

About one hundred yards or so from the Victoria tank is another large aquarium, where many superb varieties of charming Nymphæas flourish in all their glory.

Knowing my inability to do justice in the description of these extremely beautiful water lilies, the reader, I trust, will pardon me if I fail to convey to their minds a proper sense or conception of their unrivalled grandeur. In remembrance their subtile and exquisite odors seem to greet my olfactories even now, and the task of distinguishing which is the sweetest or most lovely among them, whose floral and leafy beauty are all so grand, is difficult indeed. Yet among the many kinds there is no sameness, as all individually differ in their various degrees of elegance while resting on the surface of the shimmering lake or still lagoon. Both native and foreign species, from pure white, pinky white, pink, rose, yellow, red, purple and blue colors, with their proverbial perfume, have long afforded the naturalist, novelist and poet with sentimental subjects for their pens.

If some admire the admirable Nympeæa Devoniensis, N. rubra, N. odorata, N. scutifolia or N. alba, others find their odorous compeers in N. cœrulea, N. odorata, var., delicata, N. odora rosea, N. tuberosa, N. dentata, and lastly the proprietor's unique seedling, semi-double red N. Sturtevanti, which all concede is a glorious regal flower, and, in every respect, is one of the most superb types of the tribe.

In conclusion, after leaving much unsaid upon a subject which really seems to have no end, let me advise all who have a garden of from twenty-five feet square and upwards, and own any sort of a clean tub from two to five feet in diameter, and two feet deep, that will hold water, to sink the same up to the rim in the ground, fill with water, and then place a Nympheæ, or Limnanthemuum, or other suitable plant in a pot or soil at the bottom, and I can assure whoever has an eye for floral beauty, will derive much pleasure from the contents of the little aquarium. And if those who, with more ample means, count their broad lands by the acre, enthused with similar feelings to the poor man who finds infinite pleasure in his smaller estate and more humble appliances, will construct on a larger scale a more appropriate tank, lake or pond for their cultivation, they will find the immensely remunerative pleasures a sufficient compensation for the expense incurred.

Many places have some "bosky bourn" or cosy nook, as art or nature has formed it; if not, any efficient landscape gardener can form one. In such a spot a paradisiacal scene may be skilfully counterfeited, where harmonious land and water mutually combine to give to it a romantic beauty.

A natural looking lake, pond or lakelet (avoiding square, oval, oblong or circular forms, well puddled with tenacious clay, and supplied with water from a mossy dripping fountain, would be a suitable place in which to grow hardy aquatics. The tender ones would require warmer quarters under glass during winter, where they would be equally as interesting until put out again on the return of warm weather. The aquarium should be margined with common mosses from the woods and irregular tufts or patches of sub-aquatics; behind this, as with the pond, a rockery of natural form may be partially hidden among such tropical growth as the following: Erianthus, Arundo, Caladium, Calocacasia, Recinus, Philodendron, Canna, Palms, Aralia, Polymnia, Wegandia, Bambasa, Yucca, Heracleum, Alpinia, Ferns, etc. There the happy ones who know no sorrow, as well as the weary toilers vexed and tired with worldly pursuits,

while freeing their minds from every "carking care,"

> "In the still evening, when the whispering breeze
> Pants on the leaves and dies upon the trees,"

will find, at least for the time, peace and content gently merging into terrestrial felicity, where

> "At every breath soft beaming odors shed,
> Which still grow sweeter as they wider spread;
> Less fragrant scents the unfolding rose exhales,
> Or spices breathing in Arcadian gales."

Mount Holly, N. J., October, 1883.

PHILADELPHIA SUBURBS.

BY THOMAS FOULDS.

In any attempt to give a description of the scenery in localities where it has been my pleasure to pass through, I know I should come far, very far, short in making the impressions that many writers have done on a like subject. However the pleasure is within me, and will remain as long as life lasts, and to others as long as autumn leaves will fall.

At this season of the year, peculiar and characteristic of America, the forest trees don their lovely foliage. It was but a few months ago the leaves leaped from their little buds, and we may imagine them like children clapping their hands with wonder and delight. All through the summer they have been joyously at work, and now, seemingly to celebrate nature's golden wedding with gorgeous display, like all living things, they will soon leave us and the sad autumn winds seem like a funeral dirge as they pass over trees bare and leafless, and over dry withered grass. Most people, whether travelling by rail or otherwise through the suburbs of Philadelphia, seem attracted and delighted by the panorama before them at any season, and especially railroad passengers cannot but be impressed by what they see.

As we ride along with lightning speed the scenery is ever changing,—now we are in a dingle or bosky dell, now in the mazes of tangled woods. Passing along, the eye strikes some unique and beautiful object in the distance, perhaps a stately mansion with its peculiarly well kept lawn and surroundings, or a group of trees with their colors blended tastefully with the sombre hues of the Norway firs and their species, white pines towering above with a wierd yet commanding prominence; a group of rhododendrons and other shrubbery, with now and then a bit of water scenery, and we pass out and again gain sight of some other object equally unique and charming. Rarely, anywhere, can be seen so much varied beauty.

Beautiful and extensive mansions continue far out into the country, demonstrating the prosperity, the love and good taste of the business men of that city in seeking rural homes where health and enjoyment only can be attained.

Philadelphia truly is a city of homes, fostered by its boundless enterprise and the solidity of its capitalists. Everywhere is seen a marked degree of improvement from the humble cottager to the voluminous millionaire. Both seem imbued with the spirit of adornment, and in greater or less degree they display their several tastes. Many an old and well laid out place we have around us which attest the skillful hand of the landscape gardener, and which at one time, dear Editor, were objects of beauty. It makes one deplore the condition of some of these, and to wish that the old enthusiasts were still alive.

I may possibly venture upon dangerous ground when I say that some of us gardeners are too monotonous in our general routine. Not only in the greenhouse or conservatory, but on our lawns —and here may I commend an article by Mr. N. Robertson, Supt. Government Grounds, Ottawa, Canada, in the July MONTHLY, on "Greenhouse Decorations"—a very good suggestion and an important one.

Variety and some originality should mark our labors, as in laying out our beds on the lawn. I know of some places that have appeared the same for years as if nothing else would grow there, or if moved elsewhere would surely die, seeming to adopt the passage "as it was in the beginning, is now and ever shall be, world without end, Amen." Certainly it gives extra labor in making changes; but if done well, and at the proper time, there is no disfigurement of the lawn, and the change is wholesome and generally appreciated. Permanent designs, no matter how often the colors are changed, I do not think are consistent with the highest taste. This is my opinion. It may not meet with the approval of every one, but I am open to conviction.

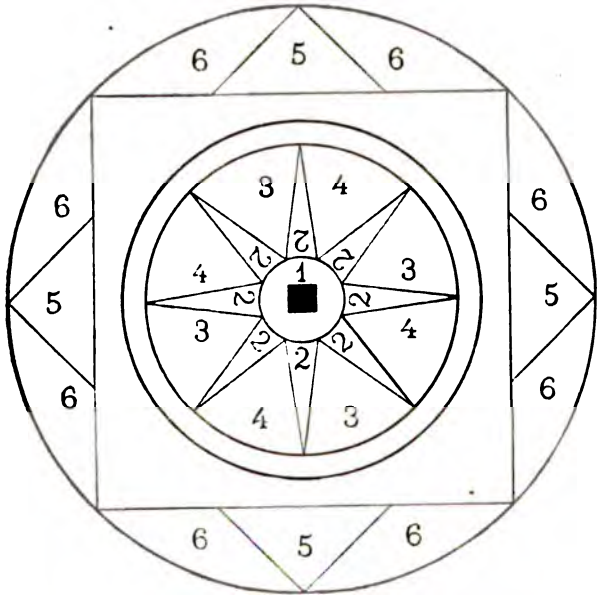
Centre Square, Pa., Oct., 1883.

EDITORIAL NOTES.

THE "COTTON" CATERPILLAR—of Philadelphians, which took the place of the measuring-worm on the trees of the public squares, after the introduction of the English sparrow, is the name given to the caterpillar produced by the Orgyia lucostigma, probably from the cottony cocoons

which cover the rough bark of the tree trunks in the winter season. They ought to be easily destroyed by a hard brush. The cocoons are placed in the crevices of the rough bark for protection, and hence this rough bark makes a good trap for them.

MOSAIC FLOWER-BEDS.—Wherever these can be looked down on from an elevation they have a beautiful effect in gardening, and it will long be before they get unpopular. The Italian *Bulletin of Horticulture* gives a sketch of one popular in Italy last summer, and as the plants employed do well in our country, and are easily obtained, we reproduce it here.



The plants employed were: 1. Achyranthes Verschaffeltii. 2. Santolina argentea, though with us Artemisia stellaris, or any low growing grey plant would do as well. 3. Alternanthera spathulata. 4. Alternanthera versicolor. 5. Alternanthera amabilis. 6. Golden Feverfew.

A PARADISE OF GARDENING.—What a grand place the South is for ornamental gardening. Among broad-leaved, hardy evergreens there are many which in the North are hot-house plants. Imagine what beauty there must be in a garden which has the following pretty things in the open air all the year round: Ardisia crenulata, Azalea Indica, Berberis Japonica, B. Fortunii, B. trifoliata, Budleya Lindleyana, Ceonothus rigidus, Cerasus Caroliniensis, C. Laurocerasus, Euonymus Japonica, E. Japonica variegata, E. linifolius, Gardenia Florida, G. camelliæflora, G. Fortunii, G. Japonica, G. radicans, Gordonia Lasianthus, Illicium parviflorum, Jasminum triumphans, Malpighia, Mespilus Japonica, Myrtus communis, M. angustifolia, Nerium Oleander, Olea Americana, O. Europea, O. fragrans, Photinia serrulata, Pittosporum Tobira, P. variegata, Thea Bohea, Viburnum odoratissimum, V. Tinus. These are common in Southern gardens.

NEW OR RARE PLANTS.

A DOUBLE RED-FLOWERED PLUM.—The double Chinese cherry, now some years under culture in American gardens, and admired for the pretty rosy tinge to its petals is to be reinforced by a double "red"-flowered Myrobalan plum. The flower is described as of the color of the common Hydrangea, pretty enough to be sure, but scarcely red in the American sense of the word. It may be rosy, but not red.

NEW HYBRID PERPETUAL ROSE—MARSHALL P. WILDER.—This is one of the new roses of the late Mr. Ellwanger from seed of General Jacqueminot. According to Messrs. Ellwanger & Barry, it is of vigorous growth, with healthy foliage; flowers large, semi-globular, full, well formed; color cherry carmine, much like a light colored Marie Baumann, or a shade deeper than Marie Rady, and very fragrant. In wood, foliage and form of flower, it resembles Alfred Colomb, but the seedling excels that famous variety in vigor, hardiness and freedom of bloom. The past season it continued to bloom profusely long after the Remontants were out of flower. In brief, it may be described as an improved Alfred Colomb, and as good a rose as has been raised by any one. It is undoubtedly the best American rose yet offered, and the finest of its color.

A PURPLE-LEAVED PLUM, PRUNUS PISSARDI—is among the new attractions in French gardens. It belongs to the Myrobalan group.

STATICE SUWOROWI.—Messrs. Haage & Schmidt, of Erfurt, send us a colored plate of a beautiful rosy-pink species, of which the following cut will show the habit. We have found the species generally to do remarkably well under cultivation in America—even the sea-side Statice Limonium, or Sea Lavender of the Atlantic coast doing very

well, indeed, in any ordinary garden soil, and this one will probably do as well as any. It will flower through our earlier summer months. It is one of the annual species, and the earlier it is sown probably the better. A large mass is said to be very striking.

SCRAPS AND QUERIES.

ROSE ANDRÉ SCHWARTZ.—Mr. Rölker says: "You were kind enough to insert at the time with our advertisement the picture of the new rose, André Schwartz. As such I take it for granted that your readers may like to hear about how it has been working so far. The flowers that were of a fine crimson color last spring, on what few plants were allowed to flower, are showing this fall a marked tendency to sports into lighter shades. I have noticed in a few even an approach to pure white. I learn also, that one bush, that at first flowered a deep crimson, is now turning towards a pale rose. Some bushes show larger, some smaller buds. I have seen a bud of André Schwartz this fall that equalled a Mermet in size. This is not a brilliant report in general, but I give it to the public in order to possibly hear from other quarters a better result, and again to solicit from our learned rose-growers an opinion: Why a rose that in its first state flowered a deep scarlet crimson should sport so early into lighter shades. Upon inquiry, Mr. Joseph Schwartz, of Lyons, gives the parentage as Tea Rose Souvenir de David d'Angers × Hybrid Perpetual General Jacqueminot. Is there anything in the parentage of these roses that might be the cause? I may add later that plants of the André Schwartz rose commence to show again deeper shades of crimson. Perhaps the cold weather and the nearer approach to the winter forcing season improve it."

Statice Suworowi.

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

It was feared that the great taste for cut flowers which has developed of late years would materially interfere with plant cultivation by amateurs; but this has not been found the fact. It is now rare that any house is found without pot plants of some kind. It has been found by experience that only a limited number of species is adapted to commercial purposes in the professional cut flower work. Bouvardias, Roses, Carnations, Mignonette, Sweet Alyssum, Heliotrope, Violets, Callas, Poinsettas, Orchids and a few others exhaust the commercial list,—and tasty people are not satisfied with these. After learning what these are they want to know more; they learn to admire first and then

want to grow them. It is not at all uncommon now for the fashionable caller to be entertained by a look at the window plants, or perchance the small conservatory filled with numbers of delightful things. Sometimes we think ladies do much better with winter plants in their sunny windows than even gardeners do. The writer of this had greatly to admire a crab cactus, healthy and brilliant with flowers, which the lady gardener assured us was extremely easily grown in the window; a magnificent plant of the Creeping Cereus, was preparing to follow in a few weeks. These cactuses, by the way, do remarkably well in baskets, or as bracket plants. They are probably well known by these names now. Their botanical names are Epiphyllum truncatum and Cereus flagelliformis. So many ladies succeed so well that hints for culture from the professional man seem almost superfluous.

We can hardly say as much for general greenhouse work, for many that we see around will admit of better management. They are usually much too hot for our bright and light climate.

In the arrangement of plants in the greenhouse, continual change is commendable. Every few weeks the plants may be re-set, and the houses made to appear quite different. In the end where the lowest plants once were set, now the taller ones may be placed; here a convex group, and there presenting a concave appearance. Drooping plants on elevated shelves, and hanging baskets from the roof, make little paradises of variety in what were once unbearable monotony. Gardeners often wish to know the secret of maintaining a continued interest, on the part of their employers, in their handiwork, and this is one of the most potent—continued change and variety in the appearance of every thing. Beautiful flowers, graceful forms, elegant combinations, all developing themselves with a healthy luxuriousness and ever-changing endlessness, will wake up an interest in the most indifferent breast.

The temperature of the greenhouse at this season should be maintained at about 50°, allowing it to rise 10° or 15° under the full sun, and sinking 10° or so in the night. Though many of our practical brethren differ from us, men for some of whose opinions we entertain the highest respect, we do not recommend a very great difference between night and day temperature; we think 10° ample allowance. It is following nature no doubt; but we would rather strive to beat nature. She cannot make the specimens we do, nor flower them so beautifully or profusely, and in many other respects we think the practical gardener can much improve on her red-tape notions and old-fashioned courses.

COMMUNICATIONS.

NOTES ON ORCHIDS.

BY STEWART RITCHIE.

Seeing from time to time a few notes on the above in the GARDENERS' MONTHLY I contribute a few additional. Oncidium ornithorhynchum has flowered here bearing four hundred of its rosy-lilac flowers. It is really worth a little trouble to get such a fine show as this from it, and when grown in a basket, as it is here, its flowers are shown off to advantage. Another lovely Orchid is Odontoglossum cordatum. It has been flowering here for the last three months and has still a few flowers on it. Stanhopea tigrina is at its best, carrying twelve of its yellow and chocolate colored flowers. All lovers of beauty cannot but admire this Orchid. It is the handsomest of the Genus. Last, though not least in my list, Trichopilia tortilis, which has always a fresh or green appearance independent of the beautiful flowers which it produces two or three times a year. These are all cool-house Orchids with the exception of Stanhopea tigrina, which needs a warmer house. When Orchids are kept clean, and induced to make a good growth at the proper season, they are sure to flower to satisfaction. *Pottsville, Pa., Oct., 1883.*

SKILLFUL CULTURE OF THE CHRYSANTHEMUM.

BY JOHN WOODING.

The exhibition of Chrysanthemums at Horticultural Hall, Philadelphia, on the fifth and sixth of September seemed to have been a success. I was surprised to see so many plants there with flowers of every imaginable color. It was quite equal to any show I ever saw in England, except that the plants in England are all pot-cultured. At the Philadelphia show two parties carried off all the prizes in the amateur's list. It seemed to be the opinion of outsiders, that Mr. Wister Morris's gardener ought to have had the first premium, as his plants were all pot-cultured, and well grown one-year-old plants, with fine large flowers, and of the latest new varieties; whereas Mr. Bullock's gardener, who took first prize, seemed to have plants two or three years old, taken up out of the open ground just previous to the show, and potted in twelve and fourteen inch pots. I, with two other

gardeners examined them and all concur in this. If exhibitions are to encourage skill, this one failed here. No one will call lifting a plant from the open ground, skilful pot culture. If it is at all desirable to encourage the growth of chrysanthemums in the open ground, such plants should be in a class by themselves. No kind of fair competition can be made with these and pot grown plants.

Pencoyd, Pa., Nov. 1883.

[If the Pennsylvania Horticultural Society desires to encourage horticulture in any intelligent way, so as to attract enthusiastic competition and the warm support of exhibitors, it will be worth its while to have intelligent rules of entry. One can only grow a plant one year in a pot. If they decide, as represented done here, that one may dig up a four or five year old stock, stick it in a twelve-inch pot, and run off with the premium, it ought to be clearly stated in the schedule. At the New York show, it is reported they had a plant five feet in circumference. It would interest many of our readers to know if this came from the open ground also. Some at the Pennsylvania show were five feet round, but not pot grown.—ED. G. M.]

CATTLEYA LABIATA PERCEVILIANA.

BY EPIPHYTE.

Any one who has read the English Floral Magazines for the last year or so, must have noticed the varied comments on this new species or variety of Cattleya. Some have described it in the most glowing terms, and others have rated it very low, calling it a washed out C. Mossiæ. So many have been sold in the United States during the last year that no doubt growers are anxious to know something more about it. Up to this time the writer has seen three plants bloom, each in a different collection and received from different sources, and all have been exquisitely beautiful. The flowers are not large for a Cattleya, say from four to five inches in diameter. The sepals and petals vary from light blush to rose, and appear to be firmer in substance than most of the Labiata group. But it is in the lip that the great beauty lies. The first one that opened had a dark orange throat, with maroon lines, and the lower part of the lip purple and brown. The next had a clear orange throat with lip maroon and purple; the last had a dark orange throat, spotted with reddish brown, lip maroon and purple fading to blue and a beautiful frilled white border, nearly one quarter of an inch wide. It is difficult to describe these variations which are so apparent when seen. If C. Perceviliana should continue to be a late fall or winter bloomer, it will add much to its value. It has another excellent quality,—it is the most floriferous Cattleya that I have ever seen. Every pseudo bulb bears an old flower stem, which shows from two to four flower seats. I have no doubt that many others have bloomed this Cattleya, and I would like to hear other opinions on it. I have also bloomed another new Cattleya, C. Ernstii. It has bulbs something like C. speciosissima, but the flowers are like C. Eldorado. If any one has bloomed C. Gaskeliana, I would like to know what it is like, also time of blooming.

PRESERVING CUT FLOWERS.

BY JOHN M. HUDSON.

Different flowers require a different mode of keeping; for instance, rose buds from the carnation. I have found by experience that all flowers, after they are cut, in order to retain freshness, should be kept in a cool place, and away from the air as much as possible.

I have seen handsome cut flowers arranged in a vase or basket set in the front window, with the window raised and a full current of air blowing in upon them, which would soon cause them to droop and hang their heads. By all means do not raise the window on cut flowers, the air will cause them to wither sooner than the heat.

Should you have a bouquet or a basket, see that the flowers are kept well sprinkled with cold water through the day, and at night before you retire have your basket or bouquet put in some air-tight vessel, and placed in the coolest part of the house; be careful and do not put it where it will freeze. Keep it in a temperature of from 40° to 45°; cover the flowers with well moistened paper or a very thin cloth, and you will find that the flowers, which were wilted and hanging their heads the night before, will have freshened up and look nearly, if not quite as well, as they did when received from the florist. *1404 Walnut St., Phila.*

EDITORIAL NOTES.

HAND BOUQUETS.—What size should a ladies' hand-bouquet be? is a question often asked, but never satisfactorily answered. It would not be difficult to reply to if simple taste alone decided the point, but it is one of those matters in which fashion interferes, and just now fashion

requires that bouquets should be large, very large; and bouquetists are by no means slow to follow the lead, for obvious reasons. At a popular concert held a few days ago, a prima donna brought into the orchestra an immense bouquet, which she appeared to gladly deposit in a chair as speedily as she possibly could. It was, doubtless, a superb work of art, a huge mass of white flowers with a kind of central crown of blossoms rising two inches or so higher in the center, but it was as formal looking as a Cauliflower. In London, which is the center of fashion, size is the first requisite; but one can scarcely refrain from pitying the womenfolk who have to carry them, or the attendant cavalier who has to bear the burden in his turn. At almost every flower show prizes are offered for bouquets, and it is not uncommon for country judges to object to large ones, on the ground that they are too big, however good they may otherwise be. We have seen what would be termed magnificent bouquets put behind others from this cause. It is difficult, if not impossible, to lay down hard and fast rules for the construction of bouquets. That they are needlessly big is unquestionably true, and that they become less and less objects of desirable and winning attractiveness in proportion as their dimensions are extended is doubtless true also.—*London Gar. Chronicle.*

FLOWERS AT PARTIES AND IN PUBLIC BUILDINGS.—Noting the growth of a love for floral decorations during the few past years, the London *Court Journal* says:

"Casually mentioning the decorations at Longleat at the close of 1881, we pass on to the first ball given by the Duke of Portland and officers of the Hon. Artillery Company on the occasion of the visit of their Royal Highnesses the Prince and Princess of Wales in February of last year. On that occasion a series of tents, covering upwards of an acre of ground, were superbly decorated with flowers. A most chaste and beautiful display of flowers was that by Mrs. Arthur Wilson, of 13, Grosvenor Crescent, where the lightness of the covered balcony, canopied with fronds of the graceful Bamboo depending over numerous Pitcher plants, choice Orchids, and innumerable floral gems covering undulating spaces below, formed a rich combination of pleasing effects not easily realized; and a tent in the rear of the boudoir, formed by greenery and palm leaves, produced a scene of rare beauty. The lovely decorations on the occasion of Mrs. C. H. Wilson's ball, at 32, Grosvenor Square, will also be vividly retained in the memory of all who witnessed them. Mrs. Tennant's decorations, at No. 45, in the same square, was also a great success, as was also Mrs. Heywood-Lonsdale's, in the same square; while the balls given by Mrs. Charles Waring and Lady Wilson were perfectly unique. Nothing like them had ever been seen. It would almost be invidious to describe them separately; they were faultless in conception, perfect in arrangement, and worthy of the liberality of each patron of floral decoration. One of the great features in Mrs. Charles Waring's decoration was the lovely beds of lily of the valley and roses arranged in the front balcony and over the portico. The floral balls depending from the staircase was quite a new idea, and used on that occasion, we believe, for the first time. In Lady Wilson's decorations the fountains and beds of natural water lilies, and the glorious display of orchids, never before surpassed for quantity and quality, were the principal features—(see *Gardeners' Chronicle*). Lady Mowbray and Stourton's decorations were also superb, the retiring-rooms and ball-rooms being festooned with garlands of roses, whilst the mantelpieces and fire places were filled with the choicest flowers.

"Bridgewater House was also splendidly decorated, the noble palms and tree ferns being very striking in the lofty hall and corridors. Lastly, the state apartments and ball-rooms at Buckingham Palace were, as usual, decorated in the highest style of the florist's art, and at Marlborough House every room is kept continually filled with flowers, her Royal Highness the Princess of Wales being passionately fond of flowers.

"The Foreign Offiee, late in the season last year, on the occasion of the Marquis of Hartington's reception, was made to assume a gay appearance by the splendor of the floral decorations on the grand stairs, the reception and dining-rooms. The beauty of the decorations was much enhanced by the large palm and bamboo leaves sent up from Chatsworth."

MOURNING FLOWERS.—Curious indeed is the part which flowers are made to play in our ceremonialism; but if they have been held essential to the proper observance of the marriage rites, when joy is supposed to reign triumphant, we now see them in death emblems of profound sorrow. Never previously, perhaps, have flowers formed a more prominent feature in the obsequies of death than was evidenced in Paris, on the occasion of the funeral of that distinguished man who was among the most illustrious of French statesmen. When we read of three huge wagon-loads of floral devices, and even larger quantities carried by the numerous deputations in the procession, we may well ask whether modern public funerals are not in danger of becoming transformed into popular celebrations at the shrine of Flora. It was computed that 250,000 francs were spent for flowers on the Boulevards alone, and that even more than that sum was expended in the flower market and amongst the gardeners in the environs of Paris; one wealthy man spent 4000 francs in Corsica, and the greenhouses of opulent bourgeois were made

to furnish an immense quota. Then, and not least, the gardens of Nice were shorn of their flowers, which were sent by express to Paris that they might help swell in mountains of wreaths and bouquets the great volume of French mourning and sorrow. The French are a volatile people, and when they

Nepenthes Northiana. (See description page 12.)

grieve they do so in masses and with profound intensity, just as when they rejoice they do so exuberantly. Englishmen, too can mourn their illustrious dead, but though they make flowers emblems of grief, respect, and profound feeling, they will, we trust, never convert a public funeral into a monster floral demonstration. For that and similar reasons, perhaps, France may just now prove a more profitable Elysium for flower growers than England is, but perhaps with us the demand for flowers, if less inpulsive, is more enduring and discriminative.—*Gardeners' Chronicle.*

NEW OR RARE PLANTS.

NEPENTHES NORTHIANA (see illustration page 11).—Still come new additions to the singularly curious and beautiful family of East Indian Pitcher plants. We gave last year an illustration of a remarkable one sent out by Messrs. Veitch & Sons, of Chelsea, London, named Rajah, and now we have another quite as remarkable from the same firm under the name of Nepenthes Northiana. Dr. Masters gives the following description of it:

"This is a noble addition to a genus already remarkable for the singularity and boldness of its characteristics. In the young living plant, the leaves are closely set, coriaceous, oblong-obovate, acute, tapering at the base into a short broad amplexicaul stalk. The pitchers borne on tendril-like extensions of the midrib are greenish red, flask-shaped, slightly distended at the base, elongated into a cylindrical neck, and with two membranous dentate-fimbriate wings. The mouth is very oblique, elongated towards the back, and surrounded by a narrow striated margin; the lid is cordate, roundish, depressed in the centre, red-spotted and smooth, with a short bifid spur at the base. The adult pitchers are twelve to sixteen inches in length, and three and a half to five inches in breadth, sub-coriaceous or membranous, crimson spotted, elongate, cylindric, and with two dentate-fimbriate wings. The shape of the pitchers varies; as in N. Rafflesiana, the upper pitchers, which swing unsupported in mid-air, are trumpet shaped, while those which rest on the ground are larger and more distended."

CEREUS C. M. HOVEY.—This forms the subject of a recent illustration in the *Garden*. It appears to have the habit of the variety known as Jenkinsonii, with the brilliant coloring of speciosissimus. These two are the old-fashioned cactuses of gardens, and are too beautiful to be suffered to remain so rare as we now find them.

NEW TEA ROSE — ROSALIE. — Ellwanger & Barry say this was raised by them from seed of the Marie Van Houtte, and has been tested in their houses for some time. It is of slender yet healthy growth; foliage small, dark green; flower small, a little larger than Paquerette, and of a deep pink color, about the shade of Madame Lambard. It is very pretty in bud, and the open flowers are of good substance, and remain perfect for a long time. It has a pleasing fragrance. One of its prominent traits is remarkable freedom of bloom, every shoot producing a flower. We consider it a distinct and charming miniature rose, and a valuable addition to the list of varieties suitable for forcing.

SCRAPS AND QUERIES.

SALVIA INTERRUPTA.—"C. E. P." wants to know if some one will be so good as to give him a description of Salvia interrupta.

VERBENA IMPERATRICE EUGENIE.—"V." asks: "Do you know whether or not Verbena Imperatrice Eugenie is in cultivation at the present time, and if so, where can it be procured?"

[This refers to the small creeping form of Verbena incisa, which has pink flowers with a white line down the center of each lobe of the corolla, and we believe was also called "Star Verbena." We have not seen it for some time.—Ed. G. M.]

GROWING FLOWERS IN PREPARED MOSS. — A correspondent inquires whether the premiums or competition between plants grown in moss and plants grown in the ordinary manner, promised about a year ago, ever came off, and with what results.

KEEPING WINDOW PLANTS CLEAR OF INSECTS. —"M. A. B." well remarks: "I believe that most of the trouble with insects on window plants comes from neglecting the great motto of the good housekeeper that a 'stitch in time saves nine.' It should be taken for granted that insects will certainly come to prey on the plants, and that when they do come there will be hard work to do. So I do not wait till they appear as an army, with the plant half devoured before I begin; but I syringe my plants with warm soapy water once a week lying them on their sides in the bath tub. At other times I sponge the leaves with warm soapy water, if there is no time for a full bath tub dose. Insects never trouble my plants."

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

NEW CELERY—WHITE PLUME.

BY PETER HENDERSON.

I send you a few bunches (put up New York market fashion) of our new celery "White Plume." If I mistake not, this will open an entirely new phase in Celery culture. It "sported" in the vicinity of Newark, N. J., some three years ago from what is known as the half dwarf variety, showing a variegation of creamy white, mainly confined, however, to the center stalk and leaves of the plant, looking as if nature was meeting art half way; for as we know in all

New Celery—White Plume.

other celeries this whitening of the center so as to make it fit to eat, is only obtained by the slow and troublesome process of "banking" or earthing up, while in the "White Plume" Celery no work is necessary other than hoeing or ploughing sufficient earth to the rows, so as to straighten it.

Another advantage in this new variety is, that not only the stalks are white and fit for use, but the leaves also, giving it somewhat the appearance of a bunch of white feathers, and hence the name given to it of "White Plume." This ornamental feature will be of great value, as it is well known that celery at our best hotels is nearly as much valued for an ornament for the table as for use, and in this we have the rare combination of these qualities.

There is only one drawback to this valuable new celery. Its natural tendency to white prevents it keeping late into winter, and it usually would not be safe to keep it later than the middle or end of January in such sections of the country where it has to be preserved by putting it away in the trenches. But as the greatest quantity of celery is usually used in early winter and during the holidays, for this purpose no other variety is at all so valuable as "White Plume;" and when it is known that at least three fourths of the labor is saved in growing it, it may well be believed what a boon it will be to all cultivators of this vegetable. To the greater number of amateurs heretofore, the great labor entailed in growing celery has prevented the attempt, but when it is known that it can be now grown as easily as cabbage or lettuce, there is but little doubt that the area of celery culture will be greatly extended. *New York City.*

[We are much indebted to Mr. Henderson for the information about this singular sport, which will introduce a new era into the history of celery culture.

Self-blanching celery will indeed be a labor-saving class. The celery was remarkably solid and crisp, no trace of pithiness, and no waste. To our taste it was not as nuttily flavored as the best kinds of the old-fashioned class; but this only means that the way is open for still further improvements.—Ed. G. M.]

ORDER OF RIPENING OF 35 VARIETIES OF GRAPES AT DENNISON, TEXAS.

BY T. V. MUNSON.

I find that the Champion is three to five days the earliest of any variety yet tested, little rot, very vigorous and productive, black, poor quality, about like Hartford, but sells, bringing from fifteen to twenty-five cents per pound, wholesale. Moore's Early, three to five days after Champion, larger than Concord with less rot and better shipper, equal in quality, vigor and productiveness, brings

same prices with Champion. Lady, an exquisite large white grape, no rot, very tender, slow grower but hardy, ripens with Moore's Early. Prentiss, a medium sized translucent white grape, resembling foreign sorts in texture and flavor. Rots some, and vine not the healthiest, but a fair grower, ripens nearly with Lady. Perkins, a pink grape, of great vigor, productiveness and good quality, though having a musky flavor like Concord, no rot, hangs to bunch well and a fine shipper, bringing same price in most markets with Delaware. Telegraph, black, good, ripens with Perkins, just ahead of Hartford, and much prefered to it, some rot. Early Victor, small to medium, fine quality, pulpy but not foxy, vigorous and productive, some rot, though claimed to be earlier than Champion; ripened with me on about a dozen different vines about same time with Perkins. Eumelan, excellent large, purple or black, little rot, bunch long but rather straggling, owing to imperfect fertilization. Delaware, does well here, little or no rot, highest quality as all know. Walter, a seedling of Delaware, much the same in quality, but vine more vigorous, bunch and berry larger, valuable. Brighton, vigorous, productive, much larger in bunch and berry than Delaware, and ripens with or just before it, best quality, rots to destruction. Black Eagle, one of the finest of black grapes, but worthless on account of rot. Wilder, (or Rogers No. 4) larger in berry and bunch than Black Eagle, having the same failing. Lindley, (Rogers 9) Agawam, (No. 15) and Salem, (No. 22 or 53) all large early red grapes of high quality, vigorous, but rotting some. Prefer Lindley. Martha, greenish white, or golden when dead ripe, medium in bunch and berry, vigorous, productive, little rot, very sweet. Ives, I place here, although usually marketed with Hartford when it first purples, but is by no means ripe, and ruins the market for about ten days, otherwise a good common kind free from rot, vigorous and productive. Concord, all know it, rots severely some seasons, yet is the most popular grape. Lady Washington, sickly, delicate fruit, not high flavored, rots very badly. Irving, a splendid grape, almost up to Triumph, or the Foreign Chasselas, but rots, as do nearly all foreign kinds tried here. Montgomery, an American chance seedling, supposed to be from foreign seed, but shows hybrid signs, vigorous, productive and so far shows no rot, large bunch of medium berries, golden color, very promising of this class. Duchess, a beautiful golden grape about the size of Delaware, of pure foreign quality, but rots badly, vigorous and productive. Elvira, a hybrid between the Labrusca and Riparia, both American species, greenish white, when dead ripe golden or purplish, very vigorous, productive, and of high quality, little or no rot, but if a rain falls when it is near ripening, it cracks and is ruined, owing to the compactness of bunch. Noah, a seedling of Elvira, free from cracking, having a more open cluster, but is not so good and drops from the bunch when ripe. Bacchus, an "improved" seedling of Clinton, which I cannot distinguish from the Jacent, except the saccharometer shows more sugar for wine. Triumph, a most remarkable grape in vigor of vine and size of bunch and berry, color golden, quality equals the best Chasselas, rarely ever shows any rot; very prolific. Goethe (Rogers No. 1,) the best of all Rogers kinds, a pink color when ripe, berry largest size, very little rot. Cynthiana, undistinguishable in vine and fruit from Norton Virginian, but said to make better wine, never rots, hardy and productive, small black, and makes the very finest of red wine. Post Oak No. 1, found wild in the woods near Denison, berry small to medium, black, compact in bunch, vigorous and productive, like Cynthiana, free from rot and fine for wine. Herbermont, the great southern grape, doing wonderfully in all of the Gulf states and as high up as Central Missouri. Old vines near Griffin, Georgia, have bodies a foot in diameter. Bears immensely, large clusters of the most sprightly, high flavored, pulpless fruit, rots some seasons, but comparatively free from that scourge. Seedling, produced by myself from Herbermont seed fertilized with Triumph, white or delicate pink when ripe, tough, thick transparent skin, cluster large, berry medium to large, exceedingly sprightly and delicate flavor, no pulp, melting away in the mouth like honey, vine like its parent Herbermont, very vigorous, ripening earlier than either parent a few days. First fruit borne, no signs of rot. *Dennison, Texas.*

WATER-CRESS IN WINTER.

BY GEORGE BALDERSTON.

Some remarks of the Editor on a quotation from an English paper on the growth of cress induces me to offer a few remarks on the same subject. Water-cress, as a salad, is not as much appreciated as it should be in this country, and in large sections of it where there are abundant facilities for its easy propagation it is now practically unknown.

There are quantities of it, however, gathered for the city markets, from the few localities where it

has been introduced and taken care of. For a few weeks in the spring, before the advent of early vegetables, or while those from the south are high in price, there is an open market for large quantities of it, and it is cut and tied in bundles and shipped in crates or baskets. But as the season advances, the days become longer, the sun hotter, and the cress ditto, the demand for it subsides and it is allowed to run to seed, and no further care is taken of it until next season.

Water-Cress (Nasturtium officinale) belongs to the same natural order (Cruciferæ) as our cabbage, radish, mustard, etc. It can not be called hardy, though it does live, from year to year, in spring water, which protects its roots from frost, and that first sent to market in spring, is largely these recumbent stems, with roots from every joint, grown partially under the water, and so close to its surface as to have been protected from freezing by its warmth.

These roots are an encumbrance only, and of no value to it as a salad. They have no unpleasant taste when small, but it is the stem and leaf we want for eating, and it is desirable to avoid cutting roots when bunching it for market.

The writer has never tried the expedient of shading it, to suppress its pungent properties when grown in the hot sun, but has tried the experiment of forcing it for early market (by protecting it) with success. I have no patent on this arrangement, though I suppose it is more worthy of it than many that we are asked to pay a royalty for using.

I have been growing it thus for the past two seasons, and have been able to send to market bunches of young, tender and crisp water-cress, six inches or more in length, without a root to mar its beauty or a dirty leaf, when there was none in the market, except a small quantity of dirty looking stuff, tangled up with white roots, that has been picked from under the water.

The only trouble at first is to find customers who will appreciate or pay for a first-class article; and there are many who are slow to believe that this is cress, when they see these nice clean bunches, of large cress, four to six weeks in advance of its ordinary season. But those who once buy will always come again, and I suppose a market might be found for unlimited quantities of it, thus early in the season at a paying price, and I have only the spring water and facilities near at hand for growing a moderate amount.

When cut without any roots among it, it wilts quickly, when exposed to the air, and should be shipped in tin or tight boxes. Packed loosely in tin and slightly wet, it will keep fresh a long time in cold weather.

Our domestic animals, cattle and poultry are very fond of cress, and if the latter have access to it they pull and tramp it out, and thus destroy it. The poultry will merely keep it picked off close to the water when other green feed is not at hand. I mention this, lest some amateur cultivator lose his crop and labor from these latter causes, easily guarded against. *Colora, Md.*

GETTING POTATOES EARLY.

BY EXPERIMENTOR.

Some years ago I conceived the idea of planting my potatoes with shoots to them. Probably the sprouts suggested the idea, at any rate I carried out the plan, and have been so well pleased with it that I have followed it for three years. A few weeks before planting time I select my seed potatoes, and set them in a warm place to sprout. By the time my ground is ready the shoots are about three inches in length. The potatoes are handled carefully so as not to break the growth, and cut up in suitable sizes, as in the ordinary way. One strong shoot is left to each piece. The sets must be put into the ground carefully, of course, or the shoots will be broken off. As growth commences at once, the green tops show in a few days. There is easily a saving of two weeks time at the start. Those who have rather low ground, which cannot be worked very early in spring, as I have, will find this method will enable them to compete with their neighbors on higher ground, with success. By July 10th, I was using fine Beauty of Hebrons, (an excellent early sort by the way,) planted April 25th. They were not then fully ripe, though the yellow tint in the leaves was getting quite perceptible. Generally the tops are dead at this date, but an unusually fine potato season kept them growing later this year. *Philadelphia.*

THE NEED OF POPULAR KNOWLEDGE.

BY T. BENNETT.

Your remarks in September number upon "rewarding inventors," ought to give rise to some serious thoughts.

A man invents a machine, takes out a patent for it, sells it, and is rewarded according to its value. It is not so with improvements in Agriculture and Horticulture in every respect. The crops of the country are being ravaged by insects and vermin. How is this to be remedied? Some crops can

scarcely be grown at all. Is there no remedy for this? We have a host of able writers on these subjects, and plenty of patent powders, yet the crops are injured to an alarming extent. Cabbages can be grown with great difficulty in New Jersey, and why should this be? The soil is excellent. I have been told that superior vegetable, the cauliflower, will not grow in the light soils of Jersey. But I know there are very few places where it will not grow to the highest state of perfection. I know one who has grown them in places sixty miles apart (in Jersey), where he was told a cauliflower never grew nor could be grown. And why? "Because the land did not suit them." They grew in both places very well. I saw a head that weighed in one instance 12 lbs. without a leaf, (solid pulp) and girthed 42 inches round.

These prevalent notions that insects cannot be overmatched or that certain things cannot be grown, show how much general intelligence is lagging behind.

Again, where are all the squashes gone, the winter and summer kinds, the great substitutes for turnips, that at one time were grown here in abundance, so valuable, especially in summer when vegetables are scarce? I believe only a few rich persons can have them, and at a great expense of time and trouble. The working classes and the farmers are deprived of them in a great measure. Is it the squash bug? There is a remedy, and it can be easily found.

Then the peach tree is said to be a short-lived fruit tree. About four or five crops are all, till your tree is worthless. Not necessarily is this so. Peach trees can be kept in good health and bearing condition for twenty years and more, by proper management.

A poor farmer sees in his agricultural paper that the cabbage is a good paying crop. At three feet apart he can grow 4880 to the acre. About another quarter inch closer would make it 5000. Very good. At ten cents a head this would be $500. These are the figures, and "figures are facts," and "facts are stubborn things" you know. He says, the one-half of that would pay me, so I will plant that ten-acre lot beyond. Even at five cents, that will be $250. Now what are the facts? I was amazed a few days ago, walking near a ten-acre lot of cabbage in the country. Seeing a drove of cows turned in upon it, I looked in to see how it had grown. About one-half had only formed a bunch of leaves, a few had been cut. The balance had been eaten up by caterpillars. There was fine strong ground; it seemed to have had plenty of manure. Seed had been good, perfectly clean. Now who will give a final instruction lesson to the farmer, to enable him to grow a good crop of cabbages, cauliflowers or squashes, in all ordinary seasons? *Trenton, N. J.*

BACTERIA AND PEAR BLIGHT.

BY WM. CREED.

It was an agreeable surprise to find my inquiry concerning the application of linseed oil upon pear trees in the GARDENERS' MONTHLY of October turn out so encouragingly, and undoubtedly many of your readers will thank you for this repetition of your experience, and which being so well and clearly stated, none need go astray who may choose to experiment in the matter. But touching upon the Bacterian question, you apparently put a wet blanket on the whole theory; and I am in much doubt whether you will think enough of my present good intentions should I offer a resumé, in as compact a form as possible, of this extremely interesting question, so that any of your readers who may not have been hitherto attracted by its allurements, or favored with opportunities of research in Bacterial movements, may now be led to investigate for themselves concerning these smallest of all organisms, as affecting the destruction and premature death of their pear trees.

So far as the pro or con in this case is concerned, I will first bring the opponent of the Bacterian theory mentioned by you before your readers in the person of Professor Penhallow, of Montreal, and place a supporter of the theory in the person of T. J. Burrill, of Illinois, face to face, and thus leave these gentlemen before an intelligent audience to adjust their differences, whatever they may be, in this praiseworthy research. Meanwhile I will go on with my proposed chat, hoping thereby to enlist some of your readers as microscopical investigators, and as reporters of any fruitful results they may have to offer.

As a beginning on this question I will say that in grouping these researches from a multitude of authorities they reach into the hitherto mysterious, but now rebound into the light of day, and bright enough no doubt hereafter to interest and attract those who are desirous of unfathoming the deep secrecies of nature, and some tangible remedy will in time probably be forthcoming to ward off these invaders of both vegetable and animal nature.

Bacteria are known "as the most widely diffused of all beings." They are not a spontaneous gen-

eration as some have put forth; but one has aptly asserted that, like animals and plants, however they may have once originated, are only propagated now by the law of continuous succession, and in support of this another has said that life has never been found to arise independently of pre-existing life, and claims life as derivative of life; and in recent "Philosophical Transactions" it is averred that it would be monstrous to affirm that the swarming crops of Bacteria are of spontaneous origin. Bacteria form the boundary line of life; beyond them life does not exist. The strongest magnifying power adapted to this investigation yet attained, to search into the depths of this all-absorbing subject, is the immersion system of Hartnack and possessing a magnifying power of 3000 or 4000 diameters. Nearly all Bacteria have two modes of life—one of motion—the other rest. When they swarm in water, moving amongst each other, they are said to present a spectacle similar to a swarm of gnats or the busy ant hill when in commotion, and apparently dodging each other and moving in all directions. With respect to what the motion of Bacteria depended upon recent researches point to the fact that cilia is to be found in all true Bacteria; Ehrenberg being the first to maintain that the motion of Bacteria depended upon vibratile cili. Whether Bacteria has a vegetable or animal nature Sacks is said to solve the question by uniting the algæ and fungi in a single group, the thallophytes, and establishing a series exactly parallel. Bacteria swarm only where there is favorable temperature, plenty of nourishment, and the presence of oxygen, and their power of multiplication is said only to be limited by the absence of nutrition. Their propagation depends upon bi-partition ("fission") at maturity and constricts itself in the center, resembling the figure 8 and breaks into two new individuals; each of these again in a short time dividing into two others, and each of these again dividing, either constricted in the middle or hanging in pairs. The warmer the air the quicker the division proceeds and the stronger the multiplication, and in such incredible masses that the following computation may be looked upon with amazement, viz.: that from a single Bacteria in twenty-four hours will increase to sixteen and a half millions, and so on in proportion to numbers.

No wonder, then, that your pear trees sink rapidly from this foreign besieger of health and longevity settling (presumedly) upon them. Frisch says reproduction is made only under the influence of free air. They never fail in air or water, and attach themselves to all firm bodies, but develop themselves only where fermentation, corruption, &c., are present, and multiplying in moist air wherever they can find decaying matter. Putrefaction, decay, &c., are chemical changes excited by Bacteria, and all circumstances which hinder this development delay their destructive effects. Bacteria live upon the fluid soil upon which they invade, and it is highly probable that they are the conveyors and originators of the ferment contagion. Extremely low temperature does not destroy them but simply numbs them.

It will be seen, then, from this outline of the subject before us, that the vital point for our consideration is to prevent the prodigious multiplication of Bacteria, and which, so far as vegetable physiology in this case is concerned. If permitted to do so, I will give a future paper, and partly by the aid of this synopsis, suggest possible remedies for the evil. The microscope is one great assistant in the study of this absorbing topic, and I hope the readers of the MONTHLY will be sufficiently interested in this wonderful domain of study to awaken them to action. *50 Gregory St., Rochester, N. Y.*

[It was not the editorial intention to discredit or endorse the Bacterial theory of pear blight. We do not know that linseed oil will protect a pear from the disease, as we have been supposed to say. We think it highly probable that it would; but we have no actual evidence that would satisfy science, and we desire to maintain a distinction between that which may be and that which is.

It does not weaken Prof. Burrill's position that Prof. Penhallow believes him wrong in his conception of the cause of the yellows; nor is Prof. Penhallow's position less likely to be true because Prof. Burrill has other conclusions; but that which is merely likely to be true, and which requires labored arguments in demonstration, is not science, and should have no place in purely scientific papers. We wished to emphasize this point, and not to offer any opinion, one way or the other, on the very valuable suggestions of both professors.—Ed. G. M.]

LATE CHERRIES.

BY LEARNER.

Several years ago when enquiring at a nursery for a couple of Early Richmond or pie cherry trees to plant, I was asked by the foreman why I did not plant the English Morello in preference to the other. He gave as a reason for his choice that in neighborhoods like ours, abounding in

birds, it was an important matter to have a cherry, the fruit of which would be unmolested by them, and the English Morello, ripening when the Mazzard cherry did, was rarely touched by them. I took his advice, set out two of the trees, and have had no cause to regret it. It has been said that the tree is more apt to get the black knot than the Early Richmond is, but there have been no diseases of any kind on my trees, nor on the hundreds of trees in the nursery referred to. In addition to the advantage claimed for it, there is another, which is, that it forms a round, shapely head, and by a little pruning, as it grows, it may be made into a very ornamental tree. The color of the fruit is dark red or black, that of the Early Richmond is light red. My experience leads me to say it would not be classed as a "prodigious bearer," but there is always an abundant crop of fruit to use, which can hardly be said of any early cherry in the locality in which I live. There is another cherry that I have in my mind to plant the next vacancy I have. It is the Late Duke. The Dukes in quality are between the sweet and the sour kinds. The Late Duke ripens about the time the Morellos do, so that all that has been said in favor of late sorts applies to this one. The fruit is red, and of somewhat larger size than the English Morello. Those who think the latter sort too sour, would probably find in the Late Duke something to suit their taste. It is a very desirable sort and both are profitable to grow for market.

EDITORIAL NOTES.

THE PHYLLOXERA IN FRANCE.—The French have about abandoned all effort to preserve their vines through insecticides. The use of the American stocks is found to be the simplest protection. In the first year an American cutting is planted, in the second this is used as a stock, in the third the scion bears fruit. Care must be exercised in selecting stocks suitable for particular districts, for the variety that is fitting in one place is not so in another.

GROWING ONE'S OWN VEGETABLES.—It is often urged that it does not pay the owner of a small garden to grow vegetables or most kinds of fruits, because the large market growers can grow them cheaply. They cost less in the market than grown at one's own door. It is by no means certain that this is generally true. It is not only the wholesale cost of growing, but the retailers' profits and cost of marketing, and the cost of getting them from market to one's home. Even if after all this the figures were still on the side of the market article, there is freshness and quality on the side of the home grown, and this is worth money to many a one. At a recent meeting of the Massachusetts Horticultural Society, Mr. Philbrick said that melons ripened on the vines are much better than if plucked before ripe, but that it is almost impossible to bring them to market without melting away. Cultivators near a market have a great advantage in the ability to place their fruit before consumers in the best condition.

Surely a well ripened melon from one's own garden is worth a dozen insipid things, though in cash it cost double to raise.

THE BERMUDA ONION.—"What is in a name" is illustrated by this variety of onion. A correspondent of the *Florida Dispatch* says that no onion seed is raised in Bermuda, the climate being an unfavorable one for the onion.

TOMATOES TO STAKES.—At this season when trimming trees, remember that peas and tomatoes will thank you to remember them. Twice the crop can be obtained from peas on stakes than from peas which trail on the ground, or from peas which are said to need no stakes; and tomatoes grown on stakes are vastly superior in edible qualities to those raised any other way. Pea sticks must be twiggy or the small tendrils cannot take hold. Tomato stakes may be stout to bear the great weight, and stubby to help sustain the branches.

MENOCHER'S CORELESS APPLE. — This apple produces no seeds, in fact is without core. It was fully described in our volume for 1874. It has been introduced into France and is now exciting great interest there. It is distributed as "Pomme Sans Pepin." In noticing its French introduction, M. Carriere, in the *Revue Horticole*, observes that it will be a matter of great interest to physiologists to watch whether the habit of producing no seeds is carried with it to France. He seems to suppose the absence of core may be due to climate as much as to inheritance.

JONATHAN APPLE.—This is a good keeping variety. It is reported that Charles Osborne, of Vassalboro, Maine, has kept some in good condition for twenty-two months.

THE EUROPEAN BIRD CHERRY AS A STOCK.—Professor Budd says in a recent issue of the *Bulletin of the Iowa Agricultural College*, that Cerasus Padus "is the universally used cherry

stock for the northern steppes where grafting is practised," and he adds, "in due time we will use them and we will grow on them the Eastern cherries." Is not Professor Budd mistaken? We have had no knowledge that this plant was ever so used in Europe. All attempts here in the Atlantic States to get the garden cherry to unite on this stock have proved futile. We incline the more to the belief that Professor Budd has mistaken the identity of the plant, as he says it "is indigenous to the northern prairies," which, if he means American prairies, it is not.

DOYENNE D'ETÉ PEAR.—This seems to be the earliest variety that has any great popularity about Boston. It also succeeds well at Philadelphia.

THE SHA-LEE PEAR.—The statement started recklessly in some paper that the Keiffer is only the Sha-lee or Chinese Sand pear of old, it seems too silly to contradict. If such contradiction were neccessary a recent letter of Mr. Garber might be in evidence. He once had this Sha-lee—he raised seedlings from it, and one of these seedlings, since dead, had fruit very much like the Keiffer. That is to say, the seedling of the Sand pear had a likeness to the Keiffer which the parent had not. But it is a waste of space to discuss this. The Sand pear is just as well known here as the Keiffer, and the suggestion that they are identical is "too utterly too too," if any thing ever warranted such a ridiculous phrase.

THE AMSDEN PEACH.—This ripened last year near Bordeaux in France on the 8th of July, and is highly praised by a correspondent of the *Revue Horticole*. American Peaches generally seem to get much praise in Europe.

PROFITS OF CURRANTS.—Mr. Handy, a grower in Orleans County, New York, finds great profit in La Versailles and Red Dutch currants.

SCRAPS AND QUERIES.

JAPAN PERSIMMONS.—Mr. P. J. Berckmans, Augusta, Ga., writes: "By express, to-day, I send you a box containing four varieties of Diospyros Kaki. Some may be ripe on arrival; if not, they will be in eating order shortly. We have to use a spoon when fully ripe. The Among may be eaten while becoming soft, but the others should be quite so before being fit to use. We begin to like them, after three years' trial, and they may prove not unpalatable to you. The fruit is below average size, as we had a steady drought for nearly four months and trees were overloaded."

[At this writing, December 5th, one variety—Zingi—has ripened so as to eat with a spoon; the others are yet solid and will be kept to maturity. We "begin to like them" without waiting three years to cultivate the taste. If those magazines that offer premiums to obtain subscribers would offer a Japan persimmon like those sent by Mr. Berckmans, for each new addition to their list, they might soon boast of an immense circulation.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

NATURAL SOIL FOR PLANTS.

BY G. B.

From observation of the growth of many of our native trees and plants I am inclined to sustain the opinion expressed by R. D. in his notes on the Beech Forests of Illinois.

We find many forest trees, as well as plants of smaller growth, confined to certain limits, and these limits very frequently seem to conform to the geological formation of the substrata, where no conditions of shade or the absence of it, humidity or the reverse, could have been the cause of this choice that induces the yellow locust to grow spontaneously on one side of a ravine and not on the other; and many other trees show a discrimination in a choice of soil for their native growth, where the seed must have been equally disseminated over a wide area.

Some of our native plants of great beauty are dying out, as we are destroying some of the conditions essential to their health. Has any one succeeded in growing Epigea Repens in cultivated soil? *Colora, Md.*

[There is a garden in Germantown in which the Trailing arbutus was transplanted years ago, and the plant has spread and seems quite at home. In the writer's garden a plant put in a shaded rockery some three years since holds its own fairly well.—Ed. G. M.]

CHOICE OF SOIL BY TREES.

BY PROF. BUCKHOUT.

I believe your correspondent "R. D." is quite right in his conclusion that beech and chestnut will not grow—at least to any advantage—upon limestone soils. In this part of Pennsylvania (Centre County) the chestnut grows abundantly upon the mountains which have a sandy soil, but in the valleys, the soil of which is mainly a limestone clay, it is practically unknown except where there are well-marked outcrops of sandstone or sandy shale.

I can now recall but one exception to this, and in that case a half-grown tree is growing where the soil is made quite gravelly by strong admixture of flint. A case which I thought quite exceptional proved, on closer examination, to be like that mentioned by "R. D.," no exception at all, for the surface soil showed many loose sandstones which betrayed the underlying rock.

I know of two attempts at cultivation of the chestnut on limestone land. One made about twelve years ago, when a number of trees were set out, but at this time only two or three are alive, and they but three or four inches in diameter, if my memory serves me right, and very much smaller than other kinds of trees set out at the same time.

In the spring of 1879 we set out forty one-year old chestnuts in a nursery row at the college. To-day only three are left, and they are but little larger than when they were set out, although catalpas, ashes, and other trees in adjoining rows have grown well.

Of the beech, I only know that while it is found to some extent in the mountains upon the west side of our valley, it does not occur in the valley itself, not even in the sandy ridges. Having never attempted its cultivation, and knowing that there are sometimes natural obstacles to the dissemination of the seeds of trees, I have always hesitated about putting it in the same category with the chestnut. But "R. D.'s" experience seems to show that the trees are alike in having a certain incompatibility with limestone land. *State College, Centre Co., Pa.*

[This is a question of very great interest in American forestry, and it is very desirable to have it settled in accordance with a wide basis of facts before it is finally dropped. For our part we are very much mistaken if we have not seen superb chestnut forests on limestone land in Chester and Montgomery counties, Pennsylvania; but should be glad to know positively from those living in such sections.—Ed. G. M.]

EDITORIAL NOTES.

ALCOHOL FROM THE CHESTNUT.—Under the name of tanadin, a very popular grade of alcohol is being distilled from the sweet chestnut in Europe.

THE EUCALYPTUS AS FIRE-WOOD.—There are conflicting views of the value of this wood. It has been stated in these columns that it is not even fit for fuel; but we like to give all sides of every question as long as there is any uncertainty, and the following from a California paper shows the wood to some advantage: "An Anaheim farmer has cut three hundred cords of wood off a six-acre grove of gum trees six years old. He sells the wood at $8 a cord, making the gross profits $2,400, or $66.66 per acre for each year since the trees were planted."

THE CHESTNUT IN CANADA.—Mr. P. E. Bucke says that all attempts to get the sweet chestnut to grow at Ottawa have failed.

BLUE GUM CHARCOAL.—The Spanish newspapers tell us that the wood of the Eucalyptus makes charcoal of a very superior quality.

FORESTRY IN DAKOTA.—While the Editor was passing across the continent last year he visited the much talked of forest plantations of the Northern Pacific Railroad, and was amazed at what he saw. It was evidently the same old story. The "surplus stock" of some nursery had evidently been offered cheap, and planted cheaply, and as a consequence the people were telling strangers that it is no use to plant trees in Dakota. But it was evident from the green ash, ash-leaved maple, silver maple, and a few catalpas, planted and doing well near by, that trees would grow as well there as anywhere; yet here were thousands of common Silver Maples, set out the past season, either dead or sprouting miserably. Taking hold of one of these

one-year-old dead seedlings, it came out of the ground as easy as it would from a pail of water. It appeared to have been set by a spade wedging a slit in the earth, and kicked by the heel, and this was "Forestry planting in Dakota!" No wonder they dried out in summer, when scarcely a root was in actual contact with the soil. It is amazing that railroad companies, which above all institutions are supposed to manage affairs with business shrewdness, should be led into an ignorant waste of money like this. We do not know where these trees came from, or who was the contractor who had the matter in charge; but for the sake of successful forestry in the West, as well as in the whole country, we must protest against calling these "experiments in Forestry in Dakota." If the company will take intelligent planters, and pay them properly for good trees and good work, we feel sure from our actual observation, that forestry will be a success in Dakota.

PLANTING A FOREST IN SCOTLAND.—A correspondent of the *Rural World* gives the following account of the way forests are started in Scotland, —that is, trees of an age to bear seeds.—Ed. G. M.:

"A nursery of hard wood trees is always on hand ready for use, and the cones, or burrs of the Scotch fir tree, which there takes the place of our pine, are gathered, and the seed extracted; thus the forester is always prepared. The superintendent of the estate has a strip or piece of ground almost worthless for agriculture, and decides to have it planted to forest. It is turned to the forester, who on inspection finds it a light sandy soil and well adapted to the growth of the fir; the seed is then sown on the rough surface, a temporary fence erected around the paddock, and the shepherd instructed to hold his sheep thereon for a month, driving them several times over each day, and the work is done. This is left to care for itself, and the plants are so thick that they will average one to every two feet square, growing one foot per year. At the end of fifteen years one-half of the trees are cut and sold; and this thinning process is repeated at shorter intervals, always preserving the straightest and largest trees."

We doubt whether these slovenly methods of procedure will be the best paying way for Americans to adopt. The great prejudice against forest planting here is from the supposed long time it takes for a forest to come into profit. Trees left to struggle together two feet apart for fifteen years would be no larger than hop poles, and in our country would not do more than pay for the thinning; while if the trees were eight feet apart from the start, in fifteen years they would be almost large enough for timber, and would at least be large enough for valuable firewood. Americans by a choice of good land, good varieties, and good culture, may have profitable timber trees in twenty-five years. It is no wonder on the old world methods the old world people have come to look on the work of forest raising to require centuries, and those who read foreign works and then write to the daily papers, seem in such agonies over the "destruction of American forests." The planting of new forests is of much more national importance than the miserly care of the old ones.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

NOTES FROM PROF. J. G. LEMMON.

Many thanks for the pleasant allusion in the MONTHLY for November, to my Academy article on the Arizona Potato, and more especially for the kind yet just reproof following it. In all my search, which of necessity was hurried, I did not learn of the eight years trial of these potatoes that you say was reported in the proceedings of the Academy of Natural Sciences in Philadelphia. No doubt the report is packed away in the shelves of our California Academy, but no one knows of it, and hence the facts it contained were not intentionally omitted.

Reports are now coming to me from all quarters, and those from this coast are very encouraging. Tubers are sent me measuring over four inches in circuit, and with thin skin, free from verrucose spots, derived the first season from tubers the size of bullets. A Mr. B. Rinehart living in one of the original localities of these wild potatoes,

that is in a north cañon of the Huachuca mountains, has become deeply interested in their cultivation. He planted 600 tubers dug from the top of an adjoining peak, and has just harvested fifty to sixty pounds. He planted too thickly. They sprouted in July, and at six inches high began blossoming profusely, which they continued to do all summer, as they grew taller and branched out widely, 25 to 50 inches. Nearly a bushel of seed-balls perfected, before the vines began to die in October. As yet few tubers were to be found, and these were not fit to dig. Not until the 1st of November were the hundreds of tubers ripe, and some of them are fully as large as English walnuts. Three varieties appear, white and round, flesh-colored and flattened, and purplish and oblong. Many of these tubers are startlingly similar to certain cultivated varieties, and if they refuse to become opulent and popular, more is the pity.

I am making an abstract from characteristic reports to be published in our *Pacific Rural Press* soon, and will send you a copy. Have not heard from Europe yet, but expect a failure.

Sir Joseph Hooker writes under date of October 2nd: "Your Arizona potatoes have flowered and will be figured in next *Botanical Magazine*."

We are very busy this winter determining, packing, and sending out the large accumulation of years. Hope to finish by early spring. Thereafter will only keep authentic duplicates of all our collections, for reference. Expect to continue exploring Arizona and the border lands, for several years yet, as long health permits, but it is hard, wearing, dangerous work, and we may fail at any time. I believe Mrs. Lemmon has twice the strength and determination that I have. She has made dozens of excellent water-color paintings of flowers. *Oakland, Cal.*

[We are not sure that this letter, though addressed to the "Editor," was intended for publication just as written; but it contains so many matters of general interest, that we have given the public the benefit of the doubt.—Ed. G. M.]

VEGETABLE CELLS.

BY REV. J. TEMPLIN.

One of the most important discoveries and generalizations of modern times, is the fact that all organic beings, in all their parts, are composed of small, and in many cases, of infinitessimal vesicles in the form of minute sacks, or tubes, termed organic cells. This discovery is one of the many important results of the invention of the microscope, by the aid of which we have become acquainted with myriads of wonders beyond the reach of our unaided vision. No study of the grand and imposing is of more interest than is that of the indefinitely small in the vegetable and animal kingdoms. The organic structure of the vegetable world is composed of a great variety of different structures that can be determined only by the aid of a high magnifying power. If we inquire in regard to the ultimate analysis of these we learn that they are composed almost wholly of carbon, hydrogen, nitrogen and oxygen. They also contain minute portions of earthy and saline matters. The combination of these elements so as to form organic substances can take place only under the action of the life force or vital principle. No knowledge of the nature of matter and forces of nature, united with the utmost skill in their manipulation, has ever enabled the chemist to build up a particle of living organic matter from non-living matter. This is the office of life, and so far in the world's history, its domain, in this respect, has not been invaded by any other force or power in nature. All vegetable structure has its foundation in the vegetable cell, as to both the time and form of its organization. Before proceeding to investigate the form and function of the cell, it may be well to inquire in regard to the dimensions it attains, so that we may be better able to form a correct estimate of the object with which we have to deal. The size of cells varies greatly in different substances and in the different parts of the same object. In the pollen of flowering plants they are less than one-thousandth of an inch in diameter, while in the orange and lemon they often measure one-fourth inch in length. There is a creeping marine plant, the Caulerpa prolifera, the whole plant of which consists of a single cell, although it has the appearance of having stems, leaves and roots. Each fiber of cotton consists of a single elongated cell. In the lower orders of plants, as in Fungi and Algæ, are many unicellular plants, and in many others the cells are but loosely attached to each other. The spores of most cryptogamic plants are single cells, many of them being microscopic in size, while others are visible to the naked eye. The form of cells is determined largely by surroundings. As a rule, in the loose and fleshy parts they are globular in form and only touch each other, leaving spaces between them called intercellular spaces. These are sometimes filled with air and at others with water. Where there is a uniform and moderate pressure on all sides the cells assume the form of a dodeca-

hedron, as every cell touches twelve others. When the pressure is unequal in different directions, the cell is often elongated in the direction of the least pressure, as is the case in the stems and hairs of plants. But in some water plants the cells assume a stellar form. In the wood and bast or inner bark of trees and plants, they become much elongated. The wood cells are cylindrical, tapering to the ends, and so arranged as to overlap or break joints. Bast cells are generally long and slender, and in some cases very tough. The bast fibers of flax, hemp, agave, jute, &c., are examples of remarkable elasticity, flexibility and toughness. The fiber of flax is more elastic, and that of cotton more flexible, because the former has thicker walls and retains the cylindrical form, but the latter when free from water collapses and assumes the character of a twisted, flexible strap. When the intercellular spaces are so arranged one above the other as to correspond for some distance, they form intercellular channels or passages, and if many of them unite at one point, large open spaces are formed called lacunæ. Large open cells are often placed end to end so as to form interrupted passages separated by septa, which disappear by absorption, thus forming continuous passages called ducts. These are named from peculiarities in form of construction or the purpose they serve in the vegetable economy. In one style there is a deposit of matter in circular rings at regular intervals on the inside of the ducts; hence these are termed annular or ring ducts. In others a fiber of similar matter is wound in a spiral from one end to the other of the duct forming spiral ducts. Others have numerous pits or punctures, leaving thin spots in the cell wall, and hence are termed pitted or dotted ducts. Some plants are furnished with ducts whose office is to secrete a milky fluid, as in the milk weed, dandelion and sweet potato. These are called milk ducts. A combination or aggregation of cells forms a tissue named according to the kind of cells and the mode of their combination. Thus we have vascular tissue, bast tissue, cellular tissue, woody tissue. Let us now take up the individual cell and see what we can learn of its construction and functions. If we take a cell from the growing part of a plant, as of cabbage, artichoke or potato, it will be found to be of a globular, sexagonal or dodecahedral form. On the outside is a thin wall or partition composed principally of cellulose, a substance that in its chemical constituents is precisely similar to starch. Inside of this is a thin lining membrane that has been found to consist of a viscid albuminous matter. This has been termed protoplasm or the formative layer, because it is the first part of a cell that is formed, all other parts being formed or developed from it. As all growth begins and concludes in this substance, it is probably correct to say that here is the seat or foundation of organic life. In the center is a small round body called the nucleus, in which is a still smaller dot termed the nucleolus. The internal portion of the cell is filled with a fluid, the latex or sap of circulation, in which float a great number of exceedingly minute granules of matter. During the growth of the part, this liquid is in almost constant motion. In many plants this movement of liquid with enclosed granular matter may be readily seen under the microscope. When the cell attains its full growth and has performed its office in connection with active growth, the protoplasm and nucleus disappear, and the cell walls gradually become thickened by the deposition of cellulose and lignin in the interior of the cell. All growth takes place by cell multiplication, by either division or budding. In some cases buds are formed on living cells that gradually assume the form and dimensions of the parent cell when it takes its proper place in the tissue of which it forms a part. But by far the larger part of vegetable growth is the result of cell division. When a cell is about to be divided in the process of natural growth, it first becomes slightly elongated, then a line is drawn through the center of the nucleus at right angles to the longitudinal axis of the cell. This separates the nucleus into two parts, each of which assumes the form, and becomes, in fact, a distinct nucleus. At the same time the cell wall begins to contract in a line immediately above and corresponding to the line of division through the nucleus; this constriction continues to deepen till the cell is separated into two distinct cells, separated by a wall of cellulose. The rapidity with which cell multiplication takes place in certain cases may be learned from the example of certain fungi in which it is estimated that from three to four hundred millions are formed per hour. As stated above, all growth takes place in the newer cells. In exogenous trees the older cells gradually become closed up by the deposition of a mucilaginous substance known as sclerogen. This contains the coloring matter of wood, and from its accumulation in the cells the older and central portions of the trunks of trees assume a darker color and become more firm and solid. All the growth of such trees takes place in the cambium cells between the bark and the wood, and the sap circu-

lates principally through the white wood or albumum. Though the cell is individually so insignificant, yet it is the real basis of all organic structure; and though it is the real seat of all life and growth, yet we may dissect the tissue and analyze the cell itself, and still the directing principle, the building force, escapes us. The most searching investigation, the most exhaustive analysis gives us no clew to the hidden architect who arranges the atoms into molecules, and these into protoplasmic matter, building up this into cells from which all organic structure is formed. We trace these operations towards the source of power as far as science can guide us, and we reach a boundary beyond which even "intellectual vision" will not carry us. In trying to define the force under whose impulse the organic is built up from the inorganic, we use words, the meaning of which we do not understand, and employ terms the force of which we do not comprehend. *Canon City, Col.*

EDITORIAL NOTES.

A NEW POTATO—SOLANUM OHRONDII.—While Mr. and Mrs. Lemmon are so successfully introducing the tuberous-rooted species of potato of Arizona to culture, the French have fallen on what appears to be an entirely new species, which M. Carriere calls Solanum Ohrondii after Dr. Ohrond of the French Navy, who sent it from a small island at the mouth of the La Plata river. The tubers, so far, are only the size of filberts, but more is expected by selection. The plant has a very dwarf, bushy habit, and besides the tubers from under-ground stolons as in the ordinary potato, thready branches push out from the axils of the leaves and push down into the earth and make a tuber, much as the groundnut pushes its seed pod down beneath the surface. The plant is described, figured, and a long chapter given to it, in the November number of the *Revue Horticole.*

BEES EATING GRAPES.—It has been clearly demonstrated by Australian experience that the honey bee can open flowers from outside as well as the humble-bee in this country. We have never had any doubt ourselves that they do manage to cut open grapes somehow, and eat them; but as good entomologists declare that their tongues are not equal to the task, it was not wise to argue the point too strongly. But now that it has been clearly proved that they can cut open flowers to get the honey easy, there is no reason why they cannot cut a delicate grape skin also. We now regard the question settled. Bees do cut into and eat grapes, and to that extent are an injury to the fruit grower.

EXACUM AFFINE.—Most Americans know the Fringed Gentian, familiar to them as botanists, or as lovers of Bryant's charming poetry. This will give a good idea of the family of gentianaceæ. That has a regular tubular four-parted flower, with the stamens and pistil rising straight in the centre of the flower. The genus Exacum belongs to the same natural order, but has a wheel-shaped or rotate corolla, while the stamens and pistil have a

Exacum affine.

recurved character, showing a tendency to irregularity. Besides the interest the flower affords botanically, it is a plant well worthy of the attention of the cultivator. It is an introduction of Haage & Schmidt, of Erfurt, who give the following account of it:

"New biennial species from Sokotora, forming small compact bushes about six inches high, and having dark green, ovate, three-nerved leaves, and terminal clusters of violet purple, beautifully Cyclamen-scented flowers with yellow anthers. It may be cultivated as a temperate stove plant or as a half-hardy annual, and will, when sown in the autumn, produce its flowers very frequently and incessantly from February till November. When sown in spring it will flower during the summer, and continue in full bloom through the winter, being in consequence a desirable addition to the winter-flowering decorative plants. A charming novelty, deserving a place in every garden."

POISON LILY.—Prof. Lemmon tells the *Rural Press* that a horse sickness of the Pacific, which ends in diarrhœa and often death, is caused by feeding on the "Poison Lily," Zygadenus venenosus. Yet hogs eat and thrive on the roots.

THE ENGLISH SPARROW IN PENNSYLVANIA.—By a recent act of the Legislature any person is left free to use the sparrow as may seem fitting. Those who want them, to eat insects and thin the fruit, may protect them, while those who have a fondness for sparrow pie are left free to kill as many as they choose.

CHINESE PAPER.—The commonest of Chinese paper is made of the paper mulberry Broussonetia papyrifera; but a finer quality, known as rice paper, is made of Aralia papyrifera—the pith, we believe.

SCRAPS AND QUERIES.

TROPÆOLUM PEREGRINUM.—"A. G.," Cambridge, Mass., writes: "I find no evidence that the Tropæolum, cultivated under the name of Canary Bird flower, was first received into the English gardens from the Canary Islands. The earliest English figure of it says that it came from Peru, near Lima, where it was gathered by Fenillee; also that 'the Spaniards call it Paxarito, which signifies a little bird.' The transition to Canary Bird, suggested by the yellow color, was natural. Some ignoramus, out of this, must have made Canariensis, for which there seems to be no respectable authority. Surely it does not occur under this name in the catalogues of the seed growers and dealers, and in using it one would rather have supposed that 'few of our readers would have known what we were speaking of.'"

[Page's "Prodromus of Plants Cultivated in Leading English Gardens, dedicated to Prince Leopold and Princess Charlotte," London, 1817, says, page 186: "Native of the Canaries," which, as stated before, was the general impression in the earlier stages of its introduction into English gardens, and was the origin of its name "Canariensis."

Don, in his "History of Dichlamydeous Plants," 1831, says, from Gibraltar, where it is cultivated in the open air, we have the name of Canary Bird flower. Page 746.

It does occur, surely, in the catalogues of the seed growers and dealers. Vilmorin knows it by no other name than "Canariense," catalogue 1880–81, page 85. Platz, of Erfurt, "Purveyor to His Majesty the Emperor of Germany," 1883–84, calls it Tropæolum Canariense, but gives peregrinum as a synonym, and tells that it is called Canary creeper.

Haage & Schmidt, of Erfurt, say, 1881, page 45, T. peregrinum, syn. Canariense.

We take these illustrations of the correctness of our statement from material which happens to be on the table before us, and have no doubt we could pile up more "respectable authority" should it be desirable.—Ed. G. M.]

A JEWISH CITRON.—"A. Z.," Montgomery, Ala., says: "The Jews, during their harvest feast, which ended yesterday (Oct. 23d), use a fruit which they call Esrog. It is imported from Corfu, and has the appearance and smell of a citron, but is all covered with warts. I should very much like to know the botanical and the common name of the tree which yields the fruit and if the tree can be had in America."

[We handed this note to a very intelligent gentleman of New York, of Jewish descent, but the following note is all we can learn of it. Mr. Bayersdorffer, to whom we subsequently referred the matter, knows nothing more than that it is a species of the citron family: "It is undoubtedly a species of lemon or citron. I have seen it used often enough, but don't know any other name than that of the Bible—Esrog. Have not seen it grow in Italy. If none of the readers of the GARDENERS' MONTHLY can solve the conundrum I will try in Europe. It is imported in Philadelphia, perhaps by Bayersdorffer. The feast has just occurred. It is also called 'Apple of Paradise.'"—Ed. G. M.]

STELLARIA AQUATICA. — William Frederick, Jenkintown, Pa., writes: "There is a weed on my lawn I do not know how to get rid of. It is impossible to weed it, as it grows the same as chickweed, and has a white flower and flowers early in the spring, like chickweed. You would oblige me very much if you could give me any instruction in your next MONTHLY what to do with it."

[So far as we can judge by the small specimens at this season, and without flowers, this is Stellaria aquatica, which if it has no other common name might be called swamp chickweed. But we have never known it to grow in places so dry as a lawn might be supposed to be, and we should be glad of living specimens when in flower, when we could probably give better advice.—Ed. G. M.]

THE SEASON IN LONG ISLAND. — Mr. C. E. Parnell, under date of December 10th, says: "The weather continues to be very mild so far. Pansies are in bloom in the open air, and on lawns and roadsides many dandelions are to be seen—which is something unusual for this vicinity."

DOUBLE SPATHED CALLA.—Mr. E. D. Sturtevant, of Bordentown, N. J., sends a very perfect

specimen of Richardia Ethiopica, the "calla" of gardens, with two spathes. Sometimes they have three, but this is rare. The explanation is simple to those who have studied vegetable morphology. They would say that a calla flower-stem was a bundle of consolidated leaf stalks, and the white spathe was a leaf-blade changed to imitate the corolla of an ordinary flower.

LITERATURE. TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

From an old Magazine.

Lines on the Ulex Europæus, More Generally Known as the Furze.

EXTRACTED BY W. T. HARDING.

Let Burns and old Chauser write
The praise of the daisy to sing—
Let Wordsworth of Celedine write,
And crown her the Queen of the spring;
The hyacinth's classical fame
Let Milton embalm in his verse;
Be mine the glad task to proclaim
The charms of untrumpeted Furze!

Of all other blooms when bereft,
And old Sol wears his wintry screen,
Thy sunshining blossoms are left
To light up the common and green.
Oh! why should they envy the peer,
His perfume of spices and myrrhs,
When the poorest their senses may cheer
With incense diffused from the Furze?

It is bristled with thorns, I confess;
But so is the much flatter'd rose.
Is the sweetbriar lauded the less
Because amid prickles it grows?
'Twere to cut off an epigram's point,
Or disfurnish a knight of his spurs,
If we foolishly wish'd to dispoint
Its arms from the lance-bearing Furze!

Ye dabblers in mines, who would clutch
The wealth which their bowels enfold,
See nature with Midas-like touch,
Here turns a whole common to gold.
No niggard is she to the poor,
But distributes whatever is hers;
And the wayfaring beggar is sure
Of a tribute of gold from the Furze!

Ye worldlings! learn hence to divide
Your wealth with the children of want,
Nor scorn in your fortunes or pride,
To be taught by the commonest plant.
For if wisdom the wisest may draw
From things humble, as reason avers;
We, too, may receive heaven's law,
And beneficence learn from the Furze!

Mount Holly, N. J., Sept. 3d, 1883.

LANDSCAPE GARDENING APPLIED TO CEMETERIES.

BY H. P.

The September number of the GARDENERS' MONTHLY contained a short article upon the merits of Adolph Strauch's claim to be regarded as the originator of the landscape lawn system for cemeteries in America. The writer calls it a "great error and injustice," to the memory of John C. Loudon, of London, who had written an article upon the subject, accompanied by a lithographic plate for a design, ten years before Strauch became superintendent. If that design was ever carried out with its "Landscape Architecture for Cemeteries," dotted with adornments, head stones, and tombs of the style of the day, as delineated, it was certainly something unlike the system created by Strauch in the cemetery of Spring Grove, Cincinnati. Mr. Loudon's services to the literature of gardening, must always be regarded as the most valuable of the century, and that monument of labor, his Arboretum et Fruticetum, will remain for a long time to come, invaluable to the profession. If the friend of an author of a magazine article claim him to be the originator of a new system illustrated by a lithographic design made forty years ago in England, one would expect American travellers to compare that landscape lawn system with ours. If occasionally they visit Kensal-Green, Highgate, and other graveyards, nothing is said by comparison, nor is Loudon's name heard of as their originator. To say that Loudon, so estimable as a man and distinguished as an author, could have originated the system, and executed the designs made by Strauch, which cost the unceasing labors of a lifetime, would be to call Watt the originator of the seven-day ocean steamer.

It is five years ago since Robinson, editor of the London *Garden*, discovered an American to have been the originator of this system for cemeteries, to which the writer then replied as follows:

"Of this park-like cemetery, Spring Grove at Cincinnati, Mr. Robinson presents two engravings from photographs, and says that 'it is the best ordered cemetery in America;' and 'that the gentleman who first originated these noble American garden cemeteries, Mr. J. Jay Smith, is yet alive, and only a year or two ago (1876) visited London, with the view of founding a similar kind of cemetery here, with all recent improvements!!!' It may be said that it is a matter of little importance who originated the landscape-lawn cemetery. If, however, the plan admitted by Mr. Robinson to be the best in existence, as it has been by three-fourths of the cemeteries in this country, then it may be said that its creation is not more the result of accident than the 'Faust' of Goethe. The author of the landscape-lawn system had, long before 1855, studied on the spot Pere La Chaise, Kensal Green, Mount Auburn, Laurel Hill, as well as other notable cemeteries. He was also acquainted with the parks and gardens created by the genius of Lenotre, Lenoir, Uvedale Price, Repton, Loudon, Paxton; had studied their writings, and, above all, those of Prince Puckler Muskau, of immortal memory. It was not without carefully matured plans and serious deliberations, that he ventured in his annual report to the Directors in 1856, the design of a landscape lawn cemetery, which they approved unanimously, and published, precisely as it now exists. Can it be of no importance to one who has given his early manhood to a cherished plan, who has struggled until mature age, steadily progressing with its execution against opposition, against the customs of past generations, to be told now that another man, who himself never executed anything, was the author of a plan, which, belonging to him, is the result of his own unremitting labor of a lifetime? Had Mr. Robinson read the annual reports of United States Cemeteries, this blundering misstatement might have been avoided. It will be interesting here to mention some of the changes made since 1855; how the useless, tortuous roads, lanes and paths were abandoned, replaced by broad undulations, blending the elegance of a park with the pensive beauty of a burial place, stone walls succeeded by grassy slopes, geometrical absurdities wiped away for simple nature. Lot-owners were shown the barbarism of surrounding their beautiful lawns with inclosures of stone, brick, wood, iron bars, posts, chains, gates, locks, tassels, and all the hideous iron-mongery of the shops, blotting the fair face of nature. Huge granite curbings, requiring expensive foundations, with equally extravagant marble copings, absurd mouldings around individual lots, were shown to be useless, contrary to our civilization, reflecting upon the people as respecters of law, and too suggestive of insecurity and social exclusiveness. Fortunately they are mostly gone, voluntarily thrown away by their owners! So far from protection being required, it has been demonstrated here, long years ago, that abandoning all restrictions and giving entire freedom of the grounds, was the best security for the highest respect. Neither has the enterprise of a flower garden cemetery obtained favor here. Long ranges of greenhouses, employing scores of jobbing gardeners for protection of countless plants in winter, and laying out ribbon borders, with other geometrical twirlings of nonsensical beds in summer, whose chief boast is that they enviously display greater numbers than a rival cemetery of smaller wealth, and can better afford an army of men to pinch and sprinkle them. It has been thought wiser to omit all these immense masses of bedding-out rubbish, with their attempts at harmony of color, to private individuals who will pay for it.

"With a genuine enthusiasm for the beautiful, the superintendent converted the springs and countless quagmires of the lower ground, which existed twenty years ago, into beautiful lakes, developing into sylvan glades all the ground which now makes such an exquisite foreground to the landscape. Never should this determination be relinquished, that every acre of this beautiful approach must be reserved, not a foot sold for any purpose whatever, nor its beauties despoiled by huddled masses of grave-stones and monuments, staring upon one at the very entrance, as is the case in too many other cemeteries. How simply beautiful is the present approach! Keep it so forevermore!

"Mr. Robinson has published a book which he naturally desires should be well received in this country. He had heard of the park-like cemetery here, and was informed that the superintendent was the originator of the plan, by Mr. Olmsted in New York, who expressly states the fact, and sent him the annual reports and general photograph views of the grounds. From these he published an article in 1876 in the *Garden* appropriating bodily from the reports a large portion of the article, accompanied by two large illustrations engraved from the photographs. In publishing this volume in 1878, knowing perfectly well who created this system, he repeats the substance of his article and the illustrations, stating that Mr. J. Jay Smith, of Philadelphia, is the originator of the park plan! and this in a carefully prepared book, supposed to contain accurate knowledge of the facts. Will it be less than justice then to repeat that all the new cemeteries of the country, in their published reports, admit the originality of Spring Grove, and that in the United States it has never been questioned, until the appearance of Mr. Robinson's book, which so carefully conceals even the name of the superintendent? Is it more than justice, then, to pay homage to this practical genius, whose life-long, undaunted energy and perseverance, combined with great industry and economy, have overcome all obstacles?

"It happens occasionally that professional writers, for various causes, neglect or overlook men who may be, in many respects, very much their superiors. In the present instance, the neglect is of little importance. The talents of the superintendent are surpassed by his personal modesty. A man so well known in this country, so distinguished in his profession, whose reputation is the result of distinguished success, may be indifferent to a paltry misstatement. He has at length attained a position amongst his fellows which enables him to regard apparent neglect with the serene charity that thinketh no evil. It is safe to

say that he has achieved a noble distinction, and the labors of Adolph Strauch's useful life will remain for the benefit of his countrymen when the literary work of the author of 'Parks and Gardens' is forgotten."

Men of genius may suggest systems and principles, without possessing the ability to develop them. Mr. Strauch wrote little about theories of his own or his practice in landscape gardening as he developed it in the cemetery. In his valuable library, which also contains engravings of landscapes from the works of the great masters, he studied carefully everything relating to his profession. Living amidst so much that is beautiful in nature, his studies seemed to lie in the creation of miniature landscapes, so far as they would consist with the unity that would produce an harmonious whole. Whatever he touched was embellished by a genius so practical, that he enlisted lot owners to unite their grounds, that they might blend into, and become portions of, the creations he designed, so that here and there he obtained long vistas and breadth of sward, thus effecting the repose and dignity required.

And this brings us to ask whether it be possible to continue even in Spring Grove the model thus created? Probably not. The desire may exist, and large tracts of virgin earth remain waiting for the master hand and mind who can unite them to these beginnings. The difficulties to be overcome are legion. To solve the problem of further development of the beautiful in landscape, with the increasing desire for ground which should not be sold in minute portions, is daily recurring, threatening a serious disfigurement of beautiful situations. It is proper to add a word more: Mr. Strauch was a prudent and successful man, leaving a comfortable sum for his family. He found the cemetery poor. He left it rich, in lands, buildings and money; but richer far by the system he developed, and the reputation it deserves among the cemeteries of the country.

EDITORIAL NOTES.

TO INTELLIGENT CORRESPONDENTS.—*All communications relating to advertisements, subscriptions, or other business, must be addressed to the publisher, 814 Chestnut Street, Philadelphia.*

All referring to the reading matter of the magazine must be mailed to the editor, Germantown, Pa.

No express packages for the editor received unless prepaid; and marked "Paid through to Germantown, Pa."

PREPAYING EXPRESS PACKAGES.—We again call attention to the necessity of marking packages "paid" or "paid through," when anything is sent that way. It is extremely rare that we have any thing come without such mark, that we have not to pay it over again. It may be all an express mistake, and there may be no intentional fraud, but it works just that way. During the past month we have had several of these cases. The senders have written that they sent something "prepaid," and we believe they did prepay. They were parties whose faith we do not doubt, so we took and paid over again. Of course, if we chose to go into a long correspondence we could get the matter put straight, but for many reasons we prefer to pay, when we take them at all, and say nothing. Generally the packages are refused, and we have no doubt many wonder why no notice is taken of their sendings in our columns. We have known of boarding-school girls, with presents sent to them, no doubt prepaid, having to pay over again out of their scant pocket money, rather than write back to their friends on a disagreeable subject. Always mark "paid through" on every package so sent.

CONTRIBUTIONS TO AMERICAN BOTANY TO MAY 1883.—Pleasant enough is the discovery of a new species to the ardent collector, but it must be an aggravation to the systematic botanist who would like to arrange the full Flora of a country while he is about the task. But with so much unexplored territory in our land, and with such enthusiast roamers as Mr. and Mrs. Lemmon, Rusby, Greene, Parish, Parry, and many others, new ones come to light, and the families of plants, over and over arranged, have again and again to go through the process. Here we have ninety-six pages of the proceedings of the American Academy of Arts and Sciences occupied with descriptions of new plants, or new notes about old ones, mostly made during the past year, and with more probably to follow the next year, making the completion of a full Flora of the United States a very difficult task. Still there must certainly be an end to these discoveries soon, and nearer and nearer the complete enumeration becomes possible. Over two-thirds of the pages are occupied with notes on Compositæ which Dr. Gray has been closely studying of late in view of the approaching publication of the part of his Flora having special relation to this order. As indicating the near approach of the end of new things in our territory, it may be noted that there are but two new genera described among the numerous species. One of these is dedicated

to our well known-correspondents, the Parishes of San Bernardino. It is called Parishella, and belongs to the Lobeliaceæ. It is a small white flowered plant, and will not perhaps do much to adorn our gardens. In the more showy families of plants are some new Phacelias, Pentstemons, a Verbena, and some Leguminosæ.

THE BERNE CONVENTION.—The London *Gardeners' Chronicle* says: "The question whether this country ought or ought not to become a party to the Phylloxera Convention is well worthy of careful consideration by our nurserymen. In the meantime we do not deserve the castigation administered by the GARDENERS' MONTHLY, who assumes that this country has entered the Convention. The GARDENERS' MONTHLY ought to know that no one has been more outspoken as to the folly and futility of the Phylloxera laws than ourselves."

THE PHYLLOXERA CONFEDERATION.—The German horticultural journals are beginning to growl loudly about the Berne confederation. *Sieboldia* says no one can understand the terms of agreement. The Belgian papers style the affair a very silly one, "cette facheuse convention de Berne." The Belgian horticultural papers hold nearly the same views. A recent congress of horticulturists at Ghent arrived at the conclusion that, although the Phylloxera Convention has failed to realize the object for which it was originally intended, it would be idle now to strive after its abolition.

INFORMATION REGARDING THE SOUTH.—Col. M. B. Hillyard, so well known in connection with successful efforts to introduce and foster industrial enterprises through the South, has opened a Bureau of information at New Orleans, where any one desirous may address him.

ORIGIN OF THE BEST ROSES.—The French maintain their reputation as the raisers of the greater number of popular roses, as the long list of French names of the newer ones testifies. England gives us a few good ones, and a few very good ones are of American origin. America has advantages equal to France if any one would take the matter earnestly in hand, as the late Mr. Ellwanger's success fully proved. The Baltimore raised Cornelia Cook, still holds pre-eminence.

CURRANTS.—The currant of the grocers is a grape known as the Corinth, from which the name currant is derived. It has no seeds. If it had seeds the berries would probably be double the size. At least in our ordinary varieties of hot-house grapes we often find seedless ones among the others, and these are not half the full size. These are probably from female flowers which have either not been fertilized at all, and yet have had power to develop to some extent, as we find in the Banana and some other fruit, or they may have had the use of pollen to some extent, and yet vital power was not sufficient to send the ovules forward. We believe it is not known exactly how the currant is formed.

SUBSTITUTE FOR COFFEE–GALIUM PISIFERUM, BOISS.—The *Bulletino* of Firenze in Italy, says that this galium makes an excellent substitute for coffee. It has at least this signal advantage over many plants which have been offered as substitutes, that it belongs to the same natural order to which the true coffee belongs, Rubiaceæ.

NAPOLEON I. AS A LANDSCAPE GARDENER.—It has only been recently made known through Count Montholon that during the emperor's captivity at Longwood on the Island of St. Helena, landscape gardening was one of his favorite pleasures. Fountains and rose gardens pleased him greatly. His divorced wife was fond of Botany, and gave much encouragement to the science in her garden at the Palace of Malmaison.

SCENTED OR ROSE GERANIUMS.—Three species at least are in popular cultivation under this name, viz.: P. graveolens, P. quercifolium, and P. capitatum. The first of these is the one most frequently met with; it has long-stalked hairy leaves, which are palmately lobed or nearly partite, the segments themselves being also deeply cut; the flowers are small, pale pink or lilac, the two upper petals being each marked with a darker spot. It was introduced to England by Francis Masson in 1774, and specimens grown at Kew in 1778 are in the British Museum herbarium. Mr. Lowe says that it is used everywhere in gardens in Madeira for forming ornamental clipped hedges. In this island it forms a stiff bushy shrub, from one to three feet high. The familiar odor of the leaves is differently regarded by different persons; thus Dr. Harvey calls it "balsamic," while Mr. Lowe characterizes it as a "strong, disagreeable, though subaromatic scent." Many varieties of this species are in cultivation in English gardens.

The Oak-leaved Geranium (P. quercifolium) is also an old garden favorite, introduced from the Cape in the same year, and by the same collector as the last-named species. It has much general resemblance to P. graveolens, but the leaves are not nearly so much divided—Dr. Harvey describes

them as "sinuato-pinnatifid." They are but shortly stalked, thus giving the plant a more solid and bushy appearance; the flowers, too, though similar, are larger. The scent is also different—disagreeable according to Dr. Harvey, but pleasant to others.

A near ally of this species is P. glutinosum, which was introduced to Kew Gardens by Messrs. Kennedy and Lee about 1777; specimens from them in 1780 are in the British Museum herbarium. This is a large plant, the leaves of which are more hastate in outline than those of P. quercifolium, but otherwise resemble them, and are very viscid or clammy to the touch. The flowers, too, are larger and more ornamental. This is another species which is naturalized in Madeira, where it is very extensively used as a hedge plant. The scent, which Dr. Harvey characterizes as heavy and balsamic, is, according to Mr. Lowe, "strong, but to many people not altogether disagreeable, something like that of a tan-yard, but combined with a pleasant aroma." P. tomentosum—a plant with soft, velvety lobed leaves and very small white flowers, is another species which has been in cultivation on account of its scent, which somewhat resembles that of peppermint; it was introduced in 1790.—*Gardeners' Magazine.*

DR. LOUIS EDOUARD BERCKMANS—the founder of the Fruitland nurseries, now so ably conducted by his son, P. J. Berckmans, at Augusta, Georgia, died on the 8th of December in his eighty-fourth year.

Dr. Berckmans was a native of Belgium, a possessor of a large estate, and prominent citizen; but with a profound admiration of America and her institutions, emigrated with his family to America and settled first at Plainfield, New Jersey, but finding the northern climate rather too severe for his constitution, he settled in the South a few years before the Rebellion, purchasing the beautiful property of Mr. D. Redmond, the well-known able writer on Southern horticulture. As age crept on he removed to Rome, Georgia, leaving the nurseries at Augusta to his son. He died at Rome from pneumonia as stated above. Those who love to see people of a high order of intelligence engaged in horticultural pursuits have great cause to regret the death of this able and good man.

ALEXANDER MCINTOSH OF CLEVELAND.—With this gentleman passes away another of the older race of American nurserymen whose useful lives honored the profession. He pitched his tent in Cleveland nearly half a century ago, and grew up with its greatness. His nursery was long famous, and he only retired from its active business ten years ago when in his 66th year. He was nearly seventy-six on his decease on the 8th of November. He was born and married in Scotland, and came to this country in 1833. Besides adding to the prosperity of his adopted city by his industrial enterprise, he served as a City Councillor three years, and subsequently Street Commissioner four years, and so high was the respect in which he was generally held, that but for his being a representative of the minority party, he would not have been permitted to get off without even a much larger share of public duty.

BARON FERDINAND VON MULLER—the government botanist of Victoria, Australia, was born at Rostock, in Germany, in 1825, and removed to Australia in 1847. From 1857 to 1873 he was Director of the Botanic Garden at Melbourne. He was made a Baron by the King of Wurtemburg in 1871, solely as a tribute to his high scientific attainment and zealous labors in behalf of botany and kindred sciences.

THE SOUTHERN CULTIVATOR.—The Southern States have not many agricultural magazines, perhaps because the few admirable ones like the *Southern Cultivator* cover all the ground. It is now published by J. R. Harrison & Co., Atlanta, Georgia. From the number before us we learn that a grass, Paspalum ovatum, has been found to stand drouth much better than the famous Bermuda grass, and promises to be one of the most useful of the whole list of grasses to that section of the country. It grows all winter when it is not actually freezing.

CATALOGUE OF ORCHIDS.—We often have requests to notice catalogues, but on account of the immense number of excellent ones which come to our table we have, for want of space, to limit ourselves to cases where some special point of novelty attracts attention. It surely is a novelty to find a catalogue in America exclusively devoted to that beautiful tribe of flowers, Orchideæ. Here is one by Mr. A. Brackenridge, of Govanstown, Md., occupying twenty-two pages. It must indicate a rapidly growing taste for these beautiful things when a nurseryman can keep such a nice collection, and feel warranted in making an expensive catalogue of them.

ILLUSTRATED DESCRIPTIVE CATALOGUE OF AMERICAN GRAPE VINES.—By Bush, Son & Meis

ner, Bushberg, Jefferson county, Mo. This is really a scientific treatise, embracing everything that anyone can want to know about grape growing or wine making, and we believe nothing like it has ever been produced by any horticultural business firm—certainly not in this country. Like all catalogues of nurserymen, it will be of great value to those who want to plant, and, unlike many, will have an honored place as a permanent addition to a well ordered library.

WOODS AND FORESTS.—Mr. William Robinson, the energetic publisher of the London *Garden*, and of many other very successful publications, proposes to issue a forestry serial under the above title. Like all similar enterprises of Mr. Robinson, it will certainly prove successful.

THE LIBRARY OF THE LATE W. R. PRINCE.—It has been decided to sell the library of the Princes of Flushing, the collection of three generations of horticulturists. Those who know how difficult it is to get many valuable works long out of print, will have a rare chance here. Out of regard for the memory of their ancestors the family will sell low if taken as a whole. If no such offer be received they will go to public sale. L. Bradford Prince, Flushing, New York, will give particulars.

BOOK ON CONIFERÆ.—F. J. B.: "Will you oblige by naming the best work on Coniferous trees, and where such books can be had?" Hoopes' Book of Evergreens is one of the best for American readers, though there has been no recent edition. Veitch's Manual of Coniferæ gives all the latest "news" of these plants, and is a carefully and well-written work. They are, we believe, both in the list of books for sale by C. H. Marot, publisher of the GARDENERS' MONTHLY, and priced in his advertisements.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

FLORAL DESIGNS AT THE NEW YORK HORTICULTURAL SOCIETY'S DECEMBER MEETING.—A premium was offered for an original design of cut flowers, and it was awarded to Mr. A. LeMouet. It represented a flower garden, with a balloon arising therefrom, with the words "off on a tour" upon it.

The second premium for "original designs" was awarded to Long & Houghton, and represented a Roman chariot drawn by two doves, a rather heavy load for the feathered creatures.

The first premium for table design was awarded to Hauft Bros. It represented a round table with a design of choice roses, chiefly of La France, in the center, which was surrounded by a wreath of red carnations. The edge of the table was left entirely clear for plates and other things.

In floral wedding gifts, the first premium was awarded to Charles Carlin. It represented a wishbone on a stand, which might lead to sad reflections if the couple did not get the ones they had wished for when the original bone was in service.

The best funeral design to A. LeMouet representing a mausoleum with gates ajar. For an original design A. LeMouet also had the first premium. Represented a clock with words around it, "The hour is come."

Second premium to Mr. Neal, "Rock of Ages." This was conceded to be much the handsomest design, but could not be regarded as original. This was the case with a broken wheel at the fountain, and there was a curious original fancy in a globe with wings for flight attached.

In cut flowers the most enchanting were baskets of glorious and deliciously scented orchids.

In cut roses the only novelty of good promise was the Southern Belle, a seedling of Mr. May of Albany. It was after the style of Souvenir d' un Ami, a French word equivalent to our "keep-sake."

PROGRESS OF ORCHID GROWING.—It is pleasant to note that the increase of the taste for orchid growing increases as we learn how simple their culture really is. At a recent meeting of the Germantown Horticultural Society a very beautiful collection was exhibited by Alexander Young, gardener to Mr. R. S. Mason; and the reports of the New York, Pennsylvania and Massachusetts Horticultural Societies, show them as frequent beauties on their exhibition tables.

AMERICAN POMOLOGICAL SOCIETY.—At the recent meeting held in Philadelphia, Mr. J. B. Rogers, of New Jersey, made the following motion which was unanimously adopted: "That the Secretary of this Society be instructed, at an early day to send copies of our rules and the portion of the President's address referring to the names of fruits, to all kindred societies in America." Marshall P. Wilder, President, Boston, Mass.; W. J. Beal, Secretary, Lansing, Mich.

The rules adopted, and the portion of the President's address referred to in the vote, are as follows:

Section I. Naming and Describing New Fruits.

Rule 1. The originator or introducer (in the order named) has the prior right to bestow a name upon a new or unnamed fruit.

Rule 2. The Society reserves the right, in case of long, inappropriate, or otherwise objectionable names, to shorten, modify, or wholly change the same, when they shall occur in its discussions or reports; and also to recommend such changes for general adoption.

Rule 3. The names of fruits should, preferably, express, as far as practicable by a single word, the characteristics of the variety, the name of the originator or the place of its origin. Under no ordinary circumstances should more than a single word be employed.

Rule 4. Should the question of priority arise between different names for the same variety of fruit, other circumstances being equal, the name first publicly bestowed will be given precedence.

Rule 5. To entitle a new fruit to the award or commendation of the Society, it must possess (at least for the locality for which it is recommended) some valuable or desirable quality or combination of qualities, in a higher degree than any previously known variety of its class and season.

Rule 6. A variety of fruit, having been once exhibited, examined, and reported upon, as a new fruit, by a committee of the Society, will not, thereafter, be recognized as such, so far as subsequent reports are concerned.

Section II. Competitive Exhibits of Fruits.

Rule 1. A plate of fruit must contain six specimens, no more, no less, except in the case of single varieties, not included in collections.

Rule 2. To insure examination by the proper committees, all fruits must be correctly and distinctly labeled, and placed upon the tables during the first day of the exhibition.

Rule 3. The duplication of varieties in a collection will not be permitted.

Rule 4. In all cases of fruits intended to be examined and reported by committees, the name of the exhibitor, together with a complete list of the varieties exhibited by him, must be delivered to the Secretary of the Society on or before the first day of the exhibition.

Rule 5. The exhibitor will receive from the Secretary an entry card, which must be placed with the exhibit, when arranged for exhibition, for the guidance of committees.

Rule 6. All articles placed upon the tables for exhibition must remain in charge of the Society till the close of the exhibition, to be removed sooner only upon express permission of the person or persons in charge.

Rule 7. Fruits or other articles intended for testing, or to be given away to visitors, spectators, or others, will be assigned a separate hall, room, or tent, in which they may be dispensed at the pleasure of the exhibitor, who will not, however, be permitted to sell and deliver articles therein, nor to call attention to them in a boisterous or disorderly manner.

Section III. Committee on Nomenclature.

Rule 1. It shall be the duty of the President, at the first session of the Society, on the first day of an exhibition of fruits, to appoint a committee of five expert pomologists, whose duty it shall be to supervise the nomenclature of the fruits on exhibition, and in case of error to correct the same.

Rule 2. In making the necessary corrections they shall, for the convenience of examining and awarding committees, do the same at as early a period as practicable, and in making such corrections they shall use cards readily distinguishable from those used as labels by exhibitors, appending a mark of doubtfulness in case of uncertainty.

Section IV. Examining and Awarding Committees.

Rule 1. In estimating the comparative values of collections of fruits, committees are instructed to base such estimates strictly upon the varieties in such collections which shall have been correctly named by the exhibitor, prior to action thereon by the committee on nomenclature.

Rule 2. In instituting such comparison of values, committees are instructed to consider:—1st, the values of the varieties for the purposes to which they may be adapted: 2d, the color, size, and evenness of the specimens; 3rd, their freedom from the marks of insects and other blemishes; 4th, the apparent carefulness in handling, and the taste displayed in the arrangement of the exhibit.

T. T. LYON, South Haven, Mich.
JOHN A. WARDER, North Bend, Ohio.
J. J. THOMAS, Union Springs, N. Y. } Com.
C. M. HOVEY, Cambridge, Mass.
P. J. BERCKMANS, Augusta, Ga.

LIBERAL PREMIUMS.—First, second and third premiums of $100, $50, and $25, for three general classes of floral designs, with $50 and $25 for a great variety of other things, in all nearly $1000, were offered by the New York Horticultural Society for their December exhibition.

PENNSYLVANIA STATE HORTICULTURAL SOCIETY.—The annual meeting of the State Society will be held at Harrisburg on the third Wednesday in January (16th and 17th). Orders for excursion tickets can be had on application to E. B. Engle, Chambersburg, Pa.

SEEDS WORTH GROWING

BLISS'S SELECT GARDEN SEEDS

NOVELTIES FOR 1884.

Peas Until Frost.

Bliss's Abundance Pea, 90 pods counted on a **single plant.**—Very productive, 15 to 18 inches high, requires no brushing. Second Early. Excellent quality. 25 cents per packet, 5 packets $1.00.

Bliss's Everbearing Pea.—A perpetual bearer yielding **a full crop until frost;** an excellent late variety, 18 to 24 inches high, requires no brushing. **Peas 1 1-2 inches in circumference.** Immensely productive. 25 cents per packet, 5 packets $1.00.

Bliss's American Wonder.—The best and earliest variety grown. Very dwarf, excellent flavor. 20 cents per pkt., 40 cents per pint, 75 cents per quart, post-paid.

N. B.—These three varieties will give you peas through the entire season until frost.

American Champion Watermelon.—The best eating and best shipping melon grown. More productive than any other sort. 25 cents per packet, 5 packets $1.00. **Cardinal Tomato.**—Handsomest variety grown; brilliant cardinal color inside and out, no green core, and few seeds; early, solid, good keeper. 25 cents per packet, 5 packets $1.00. **White Plume Celery.**—The most ornamental and easiest variety grown, requiring no banking to blanch. Crisp, solid and nutty. 50 cents per packet. **Golden Heart Lettuce.**—Heads large, firm and solid, with golden yellow heart; stands hot weather wonderfully; very handsome, crisp and brittle. 25 cents per packet, 5 packets $1.00. **Orange Cream Muskmelon.**—Deep salmon color, of excellent flavor, very aromatic; 25 cents per packet, 5 packets $1.00. **Early Genesee Sweet Corn.**—Extra early, superior quality; ears large; very productive, 25 cents per packet, 5 packets $1.00.

☞**One packet of each** of the above, amounting to **$2.35,** and **Gardeners' Hand Book** telling how to plant them, for **$1.75 Order NOW** and have on hand when you want to plant. For complete list, see ☞**Bliss's Illustrated Novelty List for 1884,** which contains description of **all** the **newest** and **choicest Flowers, Vegetables, Cereals, Fruits, Plants, &c., &c.** Mailed to all free.

☞**Bliss's Gardeners' Hand Book for 1884,** contains 150 pages, 300 illustrations, and a **beautiful colored plate** of flowers. It tells **WHAT, WHEN,** and **HOW** to plant, and is full of information invaluable to all interested in gardening. Mailed for 6 cents to cover postage.

B. K. BLISS & SONS,
34 Barclay Street, New York.

The GARDENERS' MONTHLY
AND HORTICULTURIST
FOR 1883-4.

SUBSCRIBERS

are requested to send at least one **NEW** name with their own, if possible. For this attention, we will furnish **THE TWO** at $3.00 for the year.

TWO NEW SUBSCRIPTIONS at $3.00. FIVE at $7.00.

Remit by MONEY ORDER or REGISTERED LETTER; or if you send DRAFT or CHECK, make payable on MIDDLE STATES, NEW ENGLAND or MARYLAND. On BANKS west and south of those points add twenty-five cents to each CHECK, to refund cost charged us for collection. Currency is at risk of sender.

RESPONSIBLE AGENTS

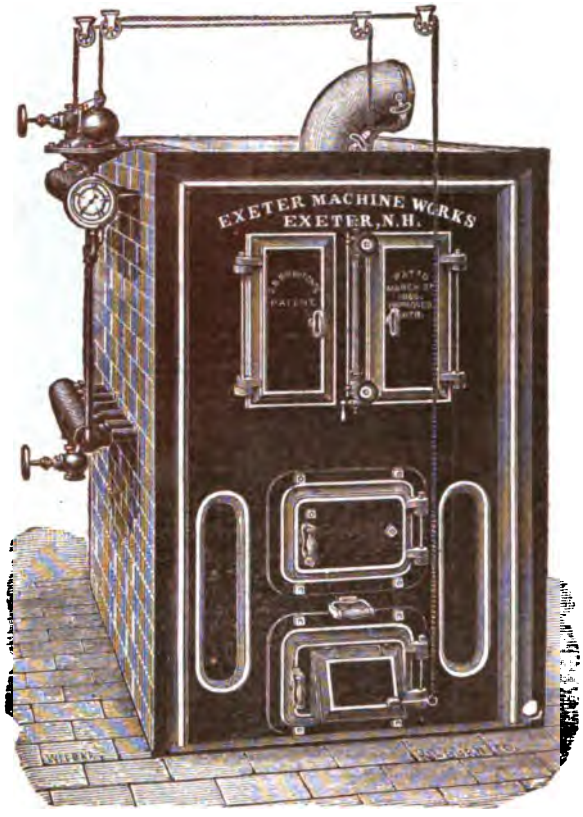
Will be allowed a liberal commission, retainable out of subscriptions secured and forwarded. Send for net rates. Sample copy 18 cts., postage stamps. We do not hold ourselves responsible for the acts of *Bogus Agents.*

SUBSCRIBERS MUST CHOOSE THEIR AGENTS AT THEIR OWN RISK.

Any **Subscriber** who has already renewed his subscription and paid $2.00 may order a new subscriber at the rate of $3.00 the two, by remitting the additional $1.00 to balance, and oblige, with thanks for past favors and efforts.

All subscribers, at whatever rate, are invited to take advantage of our list of **CLUB PAPERS.** See advertisement.

CHARLES H. MAROT, Publisher,
814 Chestnut Street, Philadelphia.



THE EXETER HEATING APPARATUS.

GREENHOUSE HEATING A SPECIALTY.

Our systems comprise Hot Water Heating, Steam Heating, and the combination of Steam and Water.

OVER 1000 BOILERS IN USE.

Exeter Machine Works

19 Federal St., Boston, and Exeter, N. H.

We solicit correspondence from any party contemplating a change in their apparatus. tf12

KNABE PIANOFORTES.

UNEQUALLED IN

Tone, Touch, Workmanship and Durability.

WILLIAM KNABE & CO.

Nos. 204 and 206 West Baltimore Street, Baltimore. No. 112 Fifth Avenue, N. Y.

THE SCHOOL GARDEN

BY DR. SCHWAB, DIRECTOR OF THE VIENNA GYMNASIUM, ETC.

FROM THE GERMAN BY MRS. HORACE MANN.

Advocating education by labor as well as by study, not as a task but as a delight. Adapting the kindergarten principle to older children. In France and Sweden it is no longer an experiment. School gardens in city and town are destined to be a great educational force in America. This book, full of spirit and enthusiasm, will materially hasten the day. Price by mail, 50 cts. each. By express, 5 copies for $2.00, 12 copies for $4 00. Sent on receipt of price.

Address, CHAS. H. MAROT, 814 Chestnut Street, Phila.

The Botanist's Pocket Book.

2nd Edition, cloth limp, pp. 208. By W. B. Hayward. Containing the Botanical Name, Common Name, Soil and Situation, Growth and Time of Flowering of every Plant, arranged under its own Order. Price $1.70. Mailed, postage free.

CHAS. H. MAROT, 814 Chestnut St., Phila.

HOW TO READ

AND HINTS IN CHOOSING THE BEST BOOKS,

With a classified list of work of Biography, History, Criticism, Fine Arts, Fiction, Poetry, Religion, Science, Language, etc. By Amelie V Petit. Pp. 220. 12mo, cloth. Price, $1.00. By mail, post-paid on receipt of price. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

GREENHOUSES HEATED

BY LOW PRESSURE STEAM.

mh12 SATISFACTORY PERFORMANCE OF APPARATUS GUARANTEED. ADDRESS,

E. H. BOCHMAN, - - - - Box 373, Pittsburgh, Pa.

KISSENA NURSERIES

TREES AND SHRUBS—OLD, NEW, RARE AND HARDY.

PARSONS & SONS CO., Limited,

Descriptive Catalogue Free. f.t FLUSHING, L. I.

Harvard College Library

THE GARDENERS' MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

Vol. XXVI. No. 302.
(Combined Magazines, Thirty-ninth Year.)
FEBRUARY, 1884.

PUBLISHED BY CHARLES H. MAROT,
814 Chestnut Street, Philadelphia.

[Entered at the Post Office, at Philadelpia, Pa., as second-class matter.]

THE GARDENERS' MONTHLY

AND HORTICULTURIST.

It is published on the first of every month at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS relating to subscription or advertising should be addressed.

☞ Communications, Copy and Packages for the Editor should be addressed to THOMAS MEEHAN, GERMANTOWN, PHILADELPHIA.

SUBSCRIPTION PRICE, POSTAGE PAID, $2.00.

ADVERTISING RATES IN THE GARDENERS' MONTHLY:

	⅛ col. or 12 lines.	⅙ col. or 16 lines.	¼ col. or 24 lines.	⅓ col. or 32 lines.	½ col. or 48 lines.	1 col. or 96 lines.	1 page, or 192 lines.
One Insertion	$3.00	$4.00	$5.50	$7.00	$10.00	$18.00	$35.00
Two times, each	2.90	3.90	5.00	6.80	9.00	17.00	33.00
Three " "	2.80	3.75	4.75	6.55	8.50	15.50	30.00
Four " "	2.70	3.60	4.50	6.30	8.10	14.40	27.00
Five " "	2.55	3.40	4.25	5.95	7.65	13.60	25.50
Six " "	2.35	3.15	3.93	5.50	7.05	12.45	23.50
Seven " "	2.20	2.95	3.65	5.15	6.60	11.75	22.00
Eight " "	2.05	2.75	3.45	4.80	6.15	10.95	20.50
Nine " "	1.90	2.45	3.20	4.45	5.70	10.15	18.85
Ten " "	1.75	2.30	2.85	4.05	5.25	9.30	17.45
Eleven " "	1.60	2.15	2.65	3.75	4.80	8.55	16.15
Twelve " "	1.50	2.00	2.50	3.50	4.50	8.00	15.00

Twelve lines nonpareil is ⅛ col. A less space than ⅛ col. will be furnished at same rate per line as ⅛ col.
For space on FLY-LEAF and LAST COVER PAGE, also FIRST PAGE advertisements facing last reading page, 20 per cent. advance on above rates will be charged.

CHAS. H. MAROT, Publisher, 814 Chestnut St., Philadelphia.

CONTENTS OF THE FEBRUARY NUMBER.

SEASONABLE HINTS:

Flower Garden and Pleasure Ground..... 33-34
Greenhouse and House Gardening..... 38
Fruit and Vegetable Gardening..... 44-45

COMMUNICATIONS:

Ipomœa Noctiphiton..... 34
Troubles with Roses..... 34
Tuberous-rooted Begonias..... 35
On Pruning Coniferous Trees..... 35
Plants, Beds and Borders..... 36
Tea Rose Etoile de Lyon..... 38
The Richardia from Seed..... 39
Cattleyas and Lælias..... 39
Scented Geraniums..... 39
Destroying Leaf Buds in Roses..... 40
Franciscea..... 40
Barkerii Skinnerii Superbum..... 40
To Kill Grubs at the Roots of Cabbage or Cauliflower 45
Pyrethrums in California..... 46
Strawberries in New Hampshire..... 46
Beech Wood..... 48
Wood of Salix Cordata, Variety Vestita..... 49
Range of the White Spruce..... 49
In Search of Cactuses..... 51
The Jewish Citron..... 53
Dosoris—Residence of C. A. Dana, near Glen Cove, Long Island..... 56
Horticultural Impostors..... 57
Recollections of a Ramble to Sudbury Park, Derbyshire, Eng., 1881..... 58
Chrysanthemums at Philadelphia and New York..... 62
Horticultural Societies..... 63
Chrysanthemums..... 64

EDITORIAL NOTES:

Barbed Wire in Live Hedges — Government Grounds, Ottawa—Exhibition Roses—Cultivating Mangrove Trees—Destruction of the Mole..... 36-37
Mahonia aquifolia — Attending Fires in Cold Weather..... 41
Wearing out of Varieties—War on the Codling Moth—Apples Grafted on Pears—Pears as Cattle Feed—Japan Persimon—Gobo or Burdock Roots—The Coming Potato—To Destroy Cabbage Worms—Lima Beans—American Peas in England..... 46-48
A Forestry Convention—Forestry in Dakota..... 50
Origin of the Apricot—Hybrid Sarracenias—The Cambridge Herbarium—Rainfall of the Last Ten Years in the Atlantic Portion of the United States—Alcohol from Melons..... 53-55
Introduction of American Plants to Europe—Phylloxera Law in Holland—The Honey Locust—Col. M. P. Wilder—Begonias—Life: Its Duration in Plants—Introduction of the Peen-to Peach into the United States—Proceedings of the Georgia State Horticultural Society—A New Desk Tool..... 60-61
Fertilizing Moss..... 64

NEW OR RARE PLANTS:

Begonia florida incomparabilis—A Pure White Fuchsia—Dieffenbachia splendens..... 41

SCRAPS AND QUERIES:

Seedling Mimulus—Verbena Imperatrice Eugenie 37
Roses and Bedding Plants—Seedling Bouvardia—Flowering of Young Century Plants—A Beautiful Variegated Begonia—Phyllanthus nummularoides—Cantua buxifolia—Abutilon insigne..... 43-44
Praising New Fruits—Names of Pears..... 48
Queries about Nut Trees—Osiers..... 50-51
The Jewish Citron or Esrog—Honeysuckle Apple. 55

FLOWER GARDEN & PLEASURE GROUND... 33-37
GREENHOUSE AND HOUSE GARDENING..... 38-44
FRUIT AND VEGETABLE GARDENING..... 44-48
FORESTRY..... 48-51
NATURAL HISTORY AND SCIENCE..... 51-55
LITERATURE, TRAVELS & PERSONAL NOTES.. 56-61
HORTICULTURAL SOCIETIES..... 62-64

THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

VOLUME XXVI. FEBRUARY, 1884. NUMBER 302.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

In those parts of the Union where frost is over, February is the great planting month, but do not plant immediately after the frost leaves the soil; wait till it dries a little, when you can tread the soil firmly about the roots without risk of rendering it hard as it dries more. If circumstances make it necessary to plant in wet soil, do not press the soil much until it gets drier. It is important to have the soil well pressed about the roots, but it injures soil to press it when wet. Where it is desirable to plant in wet ground keep near the surface. If swampy a mound may be made above the level for the water to drain off. When plants are growing, unless they are absolutely aquatics, roots must have air. This they cannot have when the roots are wholly under water. This is the underlying principle in underdraining. We provide that water shall rapidly pass through the soil in order that air may follow. This is all there is in it.

As soon as the frost leaves the ground, the lawn should be rolled with a heavy roller, while it is yet soft; this will make it have a smooth surface, take out many small inequalities, and press again into the soil the roots of the finer grasses which the frost may have drawn out. Where new lawns have to be made next spring, the seeds should be sown as early in March as possible, and the ground should be prepared for that now, if opportunity offers. For a good lawn the soil should be loosened at least twenty inches deep, and be well enriched with stable-manure, where practicable, in preference to any concentrated preparations. Guano, super-phosphates, &c., are well enough; but they do not give the soil that fibre, or lend it that porosity by which it retains moisture and air, so essential to perfect vegetation.

Rustic adornments very often highly embellish grounds. These can be made of split wood nailed to board frames. The worst feature is that they rot away so soon in our climate as scarcely to serve long enough for the labor. To guard against this every part of the frame work should be tarred or painted, and the pieces used for the fancy work should be stripped of their bark, and painted of various shades of color to represent natural shades of bark. The effect is not so striking as when the bark is left on, but we have to sacrifice a little to permanence.

As a general rule evergreens please best when they are close and densely clothed with foliage. If one has thin open trees they can be made into the most enviable specimens by a judicious use of the knife. As soon as the frost has probably

departed is an excellent time to do this. Cut back the growth of last year to within a few inches of where it started from. It is very essential, however, to remember that the whole plant, leading shoot included, must be done at one time. It is particularly essential that the leader be shortened. A new one will push, and generally will grow straight; if not, a little art will help it. Several leaders will come out sometimes, but of course all must be sprouted off but one. By this simple treatment, any dilapidated old scrub may be brought to the perfection of beauty, if it have not lost its lower branches, when of course it is beyond grace to restore.

Where a tree is young and still in fair condition, and not in the last stages of decency, it is better improved by the plan suggested by Mr. Trumpy in this number, that is, to pinch out the apex of the growing shoot. By this plan new leaders form without any artificial aid.

Many low plants are now made into standards by grafting them on stronger ones, at several feet from the ground. Europe is much more favorable for success in this than is our country, on account of the drying effects of the atmosphere on the stock. There are not leaves enough usually to encourage the sap's ascent before what is in the old stock is dried out. Every encouragement should therefore be given to the graft to grow as rapidly as possible, and to this end all sprouts and suckers should be taken off as soon as seen.

COMMUNICATIONS.

IPOMŒA NOCTIPHITON.

BY JAMES WOODING.

This is one of the most remarkable and interesting climbing plants that ever came under my notice. It has the honor, if honor it be, of bearing two or three names, and certainly is deserving of them more than some others I could mention that have been tried and found wanting. It is commonly called the "Moon Flower" or "Evening Glory." It derives its former name no doubt from the flowers being moon-shaped, and the latter because the flowers open in the evening. The color of the flowers is pure white; they are about five inches in diameter, and, as they expand at night, have a very striking effect. I grew two plants this last season, each running on a pole, and let them run one on each side the garden walk, and trained them over the top, arch fashion, and they were admired by all who saw them. The plant is a very rapid climber, possessed of great vitality, and I believe it would grow thirty feet in one season. It would be an excellent plant for covering unsightly places, or look grand when in bloom in any other prominent position. The plant is an annual, and seems of a tropical nature. The only way to perpetuate it is to propagate by cuttings in September, which root very readily. When rooted they can be potted into small pots and wintered over in the greenhouse until the following spring. These plants were procured of Mr. Peter Henderson last spring, who states that he has sold thousands of them, and they give such universal satisfaction. I do not see them for sale by any other nurseryman, but I can recommend them to get them and propagate as something good, and which ought to take well. *Pencoyd, Pa.*

[We have given this as received, because we believe the plant has been widely distributed under the above name. But we suppose there is no such name known to botanists, and Calonyction grandiflorum or more correctly Ipomœa grandiflora, is the plant possibly referred to.—Ed. G. M.]

TROUBLES WITH ROSES.

BY THE REV. HENRY WARD BEECHER.

In reply to my complaint about roses, you very finely imply that it was not so much the fault of the roses, probably, as of the cultivator, that one-third at least, of each lot, died. Now, when I set out, and do my own work, I think that I am a good gardener. But, when, as now, I direct and other men perform, I am not so sure of success. But, let me tell you my method—or rather, give account of this past summer's experiment.

I selected a piece of good loam, with much clay in it, that had been used for years, for shrubs and flowers. Clearing it off, I opened a trench a hundred feet long, to the depth of two feet. The subsoil was rejected and the trench filled, and trodden firmly with the top soil mixed with compost. This compost was made of old and well rotted manure, turf that had lain in a heap for a year and been well rotted, ashes and bone meal. The compost had been thoroughly turned and mixed. When the plants were set out, a little more ground bone of larger particles, was strewn in the trench. The rose roots were trimmed clearly and the tops cut back to about three or four buds. If they were not well set out, and firmly trodden, then never were plants well put to bed. Thus row after row,

and in the fall, from one-fourth to one-third, had died! I do not blame the nurserymen. They are of unblemished reputation. The plants looked well. But such is the history. I could give you the result in former years, of two other plantings in another part of my grounds with like results. An old negro nurse, who used the English language, with some changes, used to say to a fair friend of mine, who though exposed to small pox, had escaped infection. "Why Miss —— you are not acceptable to raptomous diseases;" meaning that she was not accessible to eruptuous diseases. Now, I fear that I am not acceptable to roses—as to open air sown carnations, pansies and hollyhocks, I call no man master. We enjoyed our seedling single dahlias very much this summer. By sowing seed in cold frame early, we had them in bloom by midsummer. *Brooklyn, L. I., N. Y., Jan. 2, 1884.*

[In correspondence with Mr. Beecher, who thought continual propagation from soft wood under glass might weaken the constitution of the rose plant, the editor agreed, theoretically, yet doubted whether this could be the full 'cause of Mr. Beecher's bad success. This has brought the above, which we give place to in order that world-wide experience may be brought to bear on the interesting topic.

For our part we are not yet prepared to believe that low vital power is at the bottom of the trouble. We should look still lower, and probably find the larva of the May-beetle, which has a soft place in its heart for rose roots.—Ed. G. M.]

TUBEROUS-ROOTED BEGONIAS.

BY JOHN T. MORRIS.

I was almost discouraged last spring from trying the tuberous-rooted Begonias by the accounts I had of the poor success prominent professional gardeners had in flowering them, but remembering my own a few years previous, I thought I would again give them a trial, and the great beauty of the bed amply repaid me.

The bed was three feet in diameter, in which were placed nine plants around a rose in the center. The height of the plants at the end of the season was about thirteen inches, and upon them were 324 branches of bloom, an average of thirty-six to each plant. I know of nothing whatever that was peculiar in the situation, the bed being exposed to the direct rays of the sun all summer. If failure with these plants is general, I thought my success might be interesting to your readers.

Philadelphia, Twelfth mo., 6th, 1883.

ON PRUNING CONIFEROUS TREES.

BY J. R. TRUMPY.

I have often thought of writing a short article on pruning coniferous trees, seeing that you answer questions as how to treat old trees, and how to tie up the leaders so as to get the trees again symmetrical. Allow me to make a few remarks on these things, as you know, I have had time and opportunities to make practical observations for many years both in America and Europe.

Any one who sees our Picea Nordmanniana, Cephalonica, Cilicica and others, would suppose they had all been brought up direct with leaders; but this is not so, as Piceas among conifers are the ones which lose their leaders very often, and if they do, so much the better. You also know that if they are let go straight on they are apt to grow tall and make tap roots, consequently their transplanting is difficult and hazardous, and, what is worse, they are apt to grow thin at the sides.

Here I come in and remedy all this by pinching, with the thumb and not with the knife, while they are tender in the month of June, all other side branches that are disproportioned to the rest of the tree. For herein lies the difference, that if done in the green with the thumb no violence is done to the trees, and the sap working at once in the side branches is the result, the leaders forming their eyes for the following year. Keep this operation up for several years, then with root pruning and pinching the leaders and some unruly side branches, you will have what I call a perfect tree, which will prolong its beauty from fifteen to twenty years longer than if you had let it go at first. You will obtain a splendid specimen, broad, symmetrical and enduring. I have taken the Piceas as the most difficult section to handle.

Now Abies and Pinus are much easier. Some Pinus of course will need more or less pinching. For instance, I have had Pinus excelsa, Strobus nivea, and Austriaca, specially Pinus sylvestris, Laricio and its kindred, kept perfect by this method, good for nothing after a few years if left alone.

Abies are of all sections the easiest. Now of course the different dwarf Abies, as nigra pumila, Clanbrasiliana, Gregoriana and others, Picea pectinata compacta, and especially Picea nobilis glauca, when grafted, will remain dwarf for many years. It is one of the most beautiful objects to look upon. The use of this plant seems to have been almost entirely overlooked.

I have here some Picea lasiocarpa grafted from

side branches so as to produce a peculiar form, that of a fern more than anything else. These are of course only for landscape artists, as few other persons appreciate them. Now the sum of my ideas is simply this—that a well cultivated tree or a plant of said family has no business to feel the knife, except for dead wood. That a kind that is intended for a tree can be helped to become a more perfect enduring tree by this method.

Now with weeping trees such as Abies inverta, Picea pectinata pendula, and others, so much better again will the result be by the thumb than by the knife to develop and perfect the very form mentioned. Again, dwarf trees will be kept just so. Individuality most positive will be the result. Certainly different than if the hedge shears are used, which make all kinds of evergreen trees alike; an abominable practice.

All other kinds, Thuyas, Biotas, Retinosporas, Taxus, in fact all will, as said above, be finer and show their respective characters in full.

Kissena Nurseries, Flushing, N. Y.

PLANTS, BEDS AND BORDERS.

BY N. ROBERTSON.

A gardener when he first enters his profession does so with the full intention of making himself conversant with his trade in all its branches, but after a short time his attention gets attached to certain kinds of plants, or systems of gardening, and he gives to them almost his whole care. Success in certain lines is usually the cause of this. But it should not lead to the casting aside of branches more difficult to manage or that are common. His great aim should be to overcome the most difficult portions of his work, and acquire as much varied knowledge as possible. Carpet bedding is an instance of the ardor with which one branch is pushed to the detriment of the rest. It certainly does much to bring out the skill and intelligence of the gardener, but it greatly limits the variety of plants used. Designs may differ, but still we have the same plants over and over again for their carrying out. Now we should always try to vary the material in every bed so far as we can, and get away from established notions of what a bed should be, obeying only certain rules that must be conformed to. I often make beds not in conformity with my own ideas of what such should be, and find that they have as much praise bestowed on them as those in accord with my own wishes. The now almost universal use of bedding plants in gardening has thrown into the background many old and valuable herbaceous plants, many of them having been cast aside altogether. A plant is none the worse because known a long time and found in every cottage garden. Prize it for its beauty and duration of bloom, and for the effect it may produce in connection with others. What is more effective than a border of well chosen herbaceous plants arranged properly? Yet it is as difficult a task as the gardener can undertake, for he has several considerations and important reasons to consider. The height of the plant, which often varies according to the nature of the soil, the position in which it is placed, color of the flower, contrast, the time it will flower, rotation of blooming, all have to be thought of. But how seldom do we see evidence of such thought.

Herbaceous plant borders have a great advantage in their permanency, and are less expensive than the more delicate plants and annuals that require renewing every season. Lack of room is often given as an excuse for the neglect of this class of plants. As such plants generally occupy more space than others, a little trimming in the fall should be done. It is probable these plants will be much more sought for than they have been of late years.

But this article is not to condemn any system in which men may become interested, nor to find fault with those who study certain lines of plants only, but is to urge the greatest diversity of composition in beds and borders, changing the scene as it were at every turning, trying to please the most fastidious and gratifying all with as great variety as possible; for human tastes differ just as much as tempers.

Orchid growing just now takes precedence of everything else, but the craze has about reached its height. Candid men, experienced in them, begin to confess that there are many of them hardly worth a place in our houses. Still, a plant bearing the name of orchid is at once looked on as something worth having. Just think of one of them in England bringing the high price of £235. We will no doubt have a reaction in a few years, bringing many plants again into the markets which are now thrown aside as worthless.

Supt. Gov't. Grounds, Ottawa, Can.

EDITORIAL NOTES.

BARBED WIRE IN LIVE HEDGES.—We are pleased to note that the suggestion made in times past to plant something with barbed wire hedges

so as to hold the wires when the posts rot away, thus combining barbed wire and live fencing, received the endorsement of many speakers at the December meeting of the Massachusetts Horticultural Society. A paper by J. J. Thomas especially advocated it. On this plan we have a perpetually protective hedge, and it will not matter so much whether we have skilled labor or not for the pruning. No matter how cut, the hedge will always be safe from intruders.

GOVERNMENT GROUNDS, OTTAWA.—We have some photographs of these beautiful grounds which give a better idea of the details than mere language can do. What a pleasure gardening would be if all who followed it would throw so much intelligent enthusiasm into the profession as Mr. Robertson does.

EXHIBITION ROSES.—The recent exhibition of the National Rose Society, held at South Kensington, England, was said to be a grand feast of roses, upwards of six thousand blooms being shown. In the nurserymen's class for seventy-two trusses, Mr. B. Cant, of Colchester, took the prize. *The Garden* says of this exhibit:

"Being so thoroughly representative of the finest exhibition roses, it may be well to give the names of the most prominent varieties in this collection as a guide to those who wish to make a selection of exhibition sorts, and, moreover, save us the trouble of reiterating the names in the other classes.

"*Hybrid Perpetuals:* Xavier Olibo, John Hopper, Mad. Gabriel Luizet, Mad. Clemence Joigneaux, Francois Michelon, Constantin Tretiakoff, A. K. Williams, Mad. Charles Wood, Marquise de Castellane, Duchesse de Vallombrosa, Dupuy Jamain, Ferdinand de Lesseps, Star of Waltham, Edouard Morren, Mons. Noman, Mad. Eugene Verdier, Alfred Colomb, Princess Mary of Cambridge, Duchess of Bedford, Mons. E. Y. Teas, Reynolds Hole, Marguerite de St. Amand, William Warden, Antoine Ducher, Mad. Lacharme, Baroness Rothschild, Marie Finger, Louis Van Houtte, Mad. Eugene Verdier, Souvenir de Mons. Boll, Maréchal Vaillant, Boildeau, Mad. Vidot, General Jacqueminot, Merveile de Lyon (new), Sultan of Zanzibar, Violette Bouyer (new), Duke of Wellington, Mdlle. Marie Finger, Marchioness of Exeter, Marie Baumann, Duke of Edinburgh, La France, Dr. Sewell, Captain Christy, Fisher Holmes, Mad. Prosper Laugier, Mad. Isaac Perrière (new). Mdlle. Marie Cointet, Horace Vernet.

"*Tea and Noisette Varieties:* Ann Ollivier, Maréchal Niel, Marie Van Houtte, Souvenir d'un Ami, Niphetos, Souvenir d'Elise, Devoniensis, Mad. Willermoz, Rubens, Souvenir de la Malmaison, Comtesse de Nadaillac, Mad. Bravy, Jean Pernet, Catherine Mermet."

CULTIVATING MANGROVE TREES.—Attempts to cultivate these in English gardens failed till the plants were watered with sea-water, when they flourished.

DESTRUCTION OF THE MOLE.—Mr. T. Bennett, of Trenton, N. J., who by his sensible papers on the destruction of vermin, shows that he has given close attention to, and thoroughly understands his subject, tells us that he has discovered something which is utter extermination to the mole. He believes there should be some method whereby horticultural inventors should be secured in a good share of the profit which the public derives from the inventions for their benefit, just as other inventors are secured by patents. So do we. We were opposed to the efforts to get patents for new flowers and fruits, simply because we could see no way to make such efforts practicable. There is no more reason why one who has a good horticultural idea should not be paid as well as one who has an improved idea for an additional thread in a screw, or for a new steam engine. Anything new and useful which can be clearly defined and made tangible, so that any clerk can refer to the record and see just what it is, should be protected.

Unfortunately in horticulture and agriculture there are numberless ideas of great value which cannot be thus clearly defined and made matters of record, and for this reason only can no legal protection be given. Possibly a mole destroyer could be patented either as a "patent medicine" or a "patent trap." But in the absence of particulars it is impossible to say.

SCRAPS AND QUERIES.

SEEDLING MIMULUS.—E. Hippard, Youngstown, Ohio, writes: "I have two Mimulus moschatus seedlings. One is identical with tigrinus, flower and foliage; a very strong musky odor and stands the sun very well, much better than the other variety. Plant, compact and neat; color of flower, yellow, brown spotted. The other, long, slender foliage, with a flower much like Ruellia formosa (color and habit); plant, erect grower; foliage, strong musky. Are they new and of any value to the floral world? If you think them valuable, will send specimens of foliage and flower."

[Possibly of some value. Mr. Mansfield Milton, of your town, could possibly judge by seeing the whole plant.—Ed. G. M.]

VERBENA IMPERATRICE EUGENIE.—We learn that this old plant, the star Verbena, is still under culture in the nurseries of D. Fergusson's Sons, at Laurel Hill, Philadelphia.

Since the above was received we learn that this is grown also by Messrs. E. Walker, New Albany, Indiana, and W. T. Bell, of Franklin, the latter suggesting also that the Empress is Elizabeth, not Eugenie, which was indeed written by the original inquirer, but hastily "corrected" by the proof-reader in going through the press.

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

If plants in pots have not had the soil soured by over-watering, under bad drainage, or otherwise become sickly, say through attacks of insects or very bad treatment, they may be kept in pots for years and do well; but very often it is evident the plant is not at home in a pot. Then, it is best to prune it, and plant it out in the open ground all summer. Oleanders, oranges, azaleas, camellias and similar things are very much benefited by treatment like this; and most things love to grow in the open ground during the summer in our country, provided the roots are at all fibrous and will permit of their being lifted with care for potting again in the autumn season. Bouvardias, carnations and many things grown by florists for cut flowers in winter, are treated in this way.

In decorating one's garden for the summer there are many greenhouse climbing plants which could be set out to great advantage, helping the plants and ornamenting the ground at the same time.

There are few things more beautiful in home decoration than ornamental grasses, and where Pampas and other rich things have been preserved in pots all winter, they should be set out in deep, rich soil, in order to get a good stock for parlor ornament next season.

People seldom think of hanging-baskets till the fall comes, but the best lady gardener of our acquaintance starts her baskets in the spring, and hangs them under the shade of trees all summer.

Many kinds of orchids in baskets may also be hung all summer under the branches of trees.

Those plants which are to be kept in pots all summer are best set out in partially shaded places. There are not many things which care to be under glass the whole season in our country. It seems early to our northern readers to talk of these things, but we have readers where the spring violet already blooms, and it will not be long before spring is everywhere.

It is not always that latitude means temperature. While all the Union was complaining of the terrible freeze early in January, we in Philadelphia could not get nearer zero than 6°, and while writing this, with four inches of snow on the ground, we can walk around comfortably without overcoats.

COMMUNICATIONS.

TEA ROSE ETOILE DE LYON.

BY JEAN SISLEY.

One of my New York correspondents wrote to me some time ago, "The much vaunted Tea Etoile de Lyon in now pronounced by all the best American florists as worthless or at least very inferior in all respects to Perle des Jardins. Some of our largest rose flower growers planted it largely and had to throw it out, and in our Pomological Convention, which met in September at Philadelphia, at a meeting of over two dozen of the best florists of that city and New York, the unanimous verdict was, worthless, because it is ragged on the outer petals and an exceedingly shy bloomer."

I was struck by this very severe judgment, expressed by men of notoriety and independent opinions. Shortly after, I had a few very intelligent horticulturists at my table, among whom was Alphonse Aligatiere, and I explained my surprise at the information I had received about Tea Etoile de Lyon, considered here as a splendid acquisition. All were astonished like myself, and Aligatiere said that those who expressed such condemnation do not know how to cultivate that beautiful rose as a pot plant. Since I bought it, when it was sent out in November, 1881, by J. B. Guillot, I have been propagating it very largely and continue to do so with success.

I asked him how he proceeded to have fine pot-plants of it in bloom. He replied: In February I cleft graft it on pieces of roots of Rosa polyantha. The plants thus obtained are planted out in the open ground about April as soon as frost is no more apprehended. They make thus stout plants fit for pot culture. About the end of September I pot them in six-inch pots, without pruning or even taking off the leaves, and place them against a north wall, protected against sun, and there they are syringed several times a day. When the first frost has made leaves fall, I put them in a two spanned roof house, where I give them as much air as weather permits, and the house is merely heated to keep out frost.

They grow then slowly, but vigorously, and about March or April, not having been pruned,

they produce a large number of flower-buds, from twelve to twenty per plant, which all expand very well and produce splendid blooms. Most likely the ill success of American florists is caused because they force roses in hot houses, and it is very likely that other varieties would gain by the treatment Aligatiere has adopted for Etoile de Lyon.

Although the difference of climate must be taken in consideration, it must be interesting to know what is practised on this side of the Atlantic and therefore public intercourse is useful.

Monplaisir, Lyons, France, Nov. 28th, 1883.

THE RICHARDIA FROM SEED.

BY ERNEST WALKER.

It may interest some of the readers of the GARDENERS' MONTHLY to know how readily the Richardia alba maculata can be grown from seed.

Last summer I allowed one bloom of the Richardia to remain, for the purpose of obtaining seed, and partly to gratify my curiosity as to the exact character of the fruit, the time required for maturity, and the time required for the seed to germinate.

In twelve weeks after the fertilization of the flowers, which in the meantime had developed into a multiple fruit, consisting of slightly pulpy, three-seeded (occasionally four-seeded) berries crowded together on a fleshy axis, I obtained seed. These are nearly globular, and were thirty-six in number from twelve berries on this one spadix.

After drying the fruit whole a short time, to allow it to fully mature, I separated the seed, sowing the greater part at once. The remainder I placed in hot water, soaking them thirty-six hours, to determine whether or not this would facilitate germination. I then sowed them. Temperature 65°.

After thirty-eight days they began to germinate, and to my surprise, all about the same time. The young plants are all growing nicely, but the soaking seems to have been of no obvious benefit.

New Albany, Ind.

CATTLEYAS AND LÆLIAS.

BY EPIPHYTE.

In looking over a diary that I have kept for some years, in which I have noted the time of blooming and length of time that the blooms of various orchids lasted, my attention was drawn to the wonderful capability of these two nearly related genera to keep a house beautiful nearly the whole year round, and I have here given a list taken from a very moderate collection, and all grown in the same house. Of course a continual show of bloom cannot be kept up by a few plants of each kind, but by large quantities of such as Cattleya Mossiæ, Mendeli intermedia, and the Mexican Lælias. The blooms will last much longer in a cool temperature, viz., 50° to 60°, and great care should be taken not to wet the flowers, especially in the late fall and winter. Of course some experience is needed which cannot be learned from books, but I do not know of any plants so easy to grow as Cattleyas and Lælias.

January.—Cattleya Trianæ, C. chocoensis, C. Warscewiczii, C. labiata Perceviliana, Lælia albida, L. anceps, L. anceps Dawsonii, L. acuminata, L. autumnalis.

February.—Cattleya Trianæ, C. Aclandiæ, C. citrina, C. intermedia, C. speciosissima, C. Bogatensis, Lælia superbiens.

March.—Cattleya citrina, C. amythestina, C. intermedia, C. Skinneri, C. Schilleriana.

April.—Cattleya Mossiæ, C. citrina, C. intermedia, Lælia Brysiana, L. purpurata, L. harpophylla.

May.—Cattleya Mossiæ, C. labiata pallida, C. Skinneri, C. Mendelii, C. intermedia, Lælia purpurata, L. cinnabarina.

June.—Cattleya Forbesii, C. Aclandiæ, C. superba, C. Mossiæ, C. Warnerii, C. Harrisoniæ, C. luteola, C. Mendelii, Lælia purpurata.

July.—Cattleya Mossiæ, C. superba, C. Leopoldii, C. Harrisoniæ, C. guttata, C. crispa, C. intermedia, Lælia purpurata.

August.—Cattleya Harrisoniæ, C. intermedia, C. crispa, C. Forbesii, C. guttata, Lælia purpurata, L. Dayana.

September.—Cattleya Loddigesii, C. bicolor, C. Harrisoniæ, C. Pinellii, C. Aclandiæ, C. maxima, C. marginata, C. superba splendens, C. Ernstii, C. guttata, Lælia Perrinii.

October.—Cattleya superba, C. intermedia, C. guttata, C. Harrisoniæ, C. maxima, C. Trianæ, Lælia Perrinii, L. crispilabia, L. acuminata.

November.—Cattleya Trianæ, C. Pinellii, C. labiata Perceviliana, Lælia Perrinii, L. autumnalis, L. albida.

December.—Cattleya Trianæ, C. Bogatensis, C. Eldorado, C. maxima, C. labiata Perceviliana, Lælia albida, L. peduncularis

There are besides these, Cattleya aurea, Dowiana, Imperialis lobata, dolosa, gigas and its variety Sanderiana, and probably others. Also Lælia elegans in many varieties, L. majalis, L. flava, L. grandis, L. præstans and L. Jongheana, which I have not bloomed, but all of which are choice and easy to grow, except C. Dowiana.

SCENTED GERANIUMS

BY E. S. MILLER.

Please inform "V" in answer to his inquiry in the January number of MONTHLY, that Verbena Imperatrice Eugénie is still in cultivation, and if he will send me his address I will send him a plant. I was glad to see your note on scented geraniums. I wish some one who knows would give descriptions of those in general cultivation. They seem to be very much mixed in the catalogues, particularly the finely dissected-leaved varieties—penny-royal as I have called them. I find Epigæa repens easy to grow in pots in a cool greenhouse.

I get small seedling plants from the woods in the fall and pot them in two-inch pots, using a good mixture of loam and sand with leaf mould. As they grow and fill the pots with roots, I shift to three-inch pots. Some flower the first year. They flower but little earlier in the house than outside. By the way, Viola pedata and its varieties grow and flower nicely in a cool house, coming into flower by the first of February, when their bright colored flowers are quite attractive. They can be taken up and potted in the fall.

Wading River, N. Y.

DESTROYING LEAF BUDS IN ROSES.

BY CHARLES CRUCKNELL.

Benzine, such as printers use for cleaning forms, &c., will effectually destroy the life germ of rose buds, or for that matter, any kind of buds usually found growing under glass. It can be applied with a camel's-hair pencil, and is not objectionable or offensive, as the smell quickly passes off.

St. Louis, Mo.

FRANCISCEA.

BY CHARLES E. PARNELL.

The excellent Franciscea, Franciscea exima, is a very beautiful evergreen stove or warm greenhouse shrub belonging to the natural order Scrophulariacæa. It is a native of Brazil, where it was found in the province of St. Paul growing in the shady parts of the untrodden forests. It was discovered by M. Libon, a collector in the employment of M. de Jonghe, of Brussels, and was introduced into Belgium in 1847. It is a shrub of erect habit, growing from three to five feet in height, and having lanceolate, dull green leaves from three to six inches long and an inch or two in width. It first flowered in Europe in March, 1849. The flowers are produced in loose cymes, three or four together; they are about three inches in diameter, and are of a deep violet or purple color, but, like others of the genus, soon after their expansion change to white. This is one of those grand old plants that are at the present time so scarce and rare, but is deserving of being introduced into all choice collections, combining as it does beauty of flower, as well as fragrance. It is also a very free flowering variety. It commences to flower in January, and during that month is at its best, but if properly cared for will flower more or less until May. Small plants will also flower freely. This Franciscea is a plant easily cultivated. It requires a winter temperature of from 50° to 55°, a compost of two-thirds fibry soil and one-third well decayed manure or leaf mould; good drainage is also indispensable. When at rest, water sparingly, but when growing it must have a liberal supply. At this time a frequent use of the syringe will also be beneficial, and it will now do best in partial shade.

During the summer season the plants do best if planted out in a rich, deep border, in partial shade, care being taken as to watering, or the pots can be plunged; but I prefer to plant them out. They not only do better, but do not require so much attention.

Propagation is effected by cuttings of the young shoots placed in sand with a gentle bottom heat, or by seeds, which it occasionally produces. To increase the Franciscea, however, requires the exercise of a little skill and considerable patience, so amateurs and inexperienced persons had better secure plants which may be procured at reasonable prices of any of our leading florists.

Queens, L. I., Dec. 10th, 1883.

BARKERII SKINNERII SUPERBUM.

BY JOHN MURCHIE.

This orchid has seven spikes of bloom with me now, December 20th, the largest of which has nineteen flowers and the head of bloom is about seven inches in length. The color is a beautiful dark, rosy purple, with a yellow spot in the center of the lip. When the sun is shining on the flowers they are almost transparent and look like rose-colored frost-work.

This plant is said to do best in a cool house, but it will do well in an intermediate house. This one is growing side by side with a small plant of Phælanopsis Schilleriana that is showing a spike with upwards of thirty flowers, and is in the best possible health. It is growing on a flat block without any moss. The block is of good size, as it makes strong, fleshy roots, which like plenty of surface to cling to. It should have water every sunny day, when in flower, and three or four times a week if the weather is dull. In the summer season, when it is making its growth, it should have a good syringe twice a day; this keeps it free from thrips to which it is very subject. During the spring and early summer, when fuchsias, pelargoniums, etc., are bloomed in the house and plenty of air is admitted at all times, I select a corner where there is no direct draught. Its upright dendrobe-like,

bulbs grow from six inches to a foot high, from the top of which it sends its flower stems just as growth is completed, and will remain in bloom more than two months. Altogether it is one of the best and brightest winter-flowering orchids we have.

Another fine plant which has been in flower with me for over two months is Cypripedium Sedeni. The color of this Cypriped is a beautiful shade of soft, rosy pink; the inside of the lip is creamy-white, dotted all over with pink. It makes a handsome plant; grows about nine inches high. In habit it is like a dwarf variety of C. Roezlii; it sends up a branched spike producing many flowers, but only one on the branch and one on the main stem are open at a time. The individual flower lasts about three weeks, and as soon as one goes past another takes its place. A large plant would be a very beautiful object. The one here is only a small plant and the flower-stem has only one branch, therefore has only two flowers out at a time; but I have no doubt that as the plant becomes strong the stem will become more branched. Like all strong growing Cypripediums it is of easy culture, and requires ample drainage, plenty of water, and the heat of the intermediate house. *Sharon, Pa.*

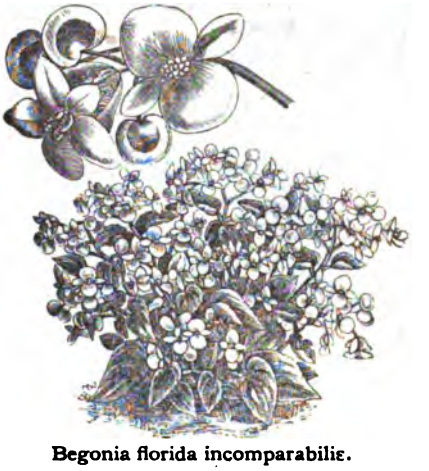
EDITORIAL NOTES.

MAHONIA AQUIFOLIA.—A couple of years ago a Cincinnati correspondent called attention in the GARDENERS' MONTHLY to the great value of the leaves of Mahonia for floral decoration. Very little use seems to have been made of this suggestion in our country. But in Europe they have taken up the idea, and the past season chrysanthemum flowers, with a leaf of Mahonia around them were the most popular ornaments for ladies' dresses, head adornments, and for buttonhole bouquets for gentlemen among the fashionable people of England.

ATTENDING FIRES IN COLD WEATHER.—We have from time to time called attention to the value of thought and careful observation in the management of furnaces. Not long since we saw a case where a gardener thought his hot water pipes had "entirely too much to do," though the one who had control before found he could keep all the heat he needed in spite of high winds and thermometer below zero. We saw at once where the difference was. The first man had his coal under cover, and always a lot near the furnace where it was half warmed before it went into the furnace. The new man took his coal at once from a pile where the temperature was below zero. And then, while the former put his coal on a little and often, the other put a pile on deadening the fire for an hour or two, and of course with a corresponding sluggish circulation for all that time. There are some who do not stop to consider what they call such little things, but it is just on such little things as these that the greatest of successes depend.

NEW OR RARE PLANTS.

BEGONIA FLORIDA INCOMPARABILIS.—According to Messrs. Haage & Schmidt, its introducers, this is a cross between B. semperflorens rosea and B. Schmidti, combining the good qualities of both parents. On account of its great profusion of bloom throughout the whole season it is decidedly



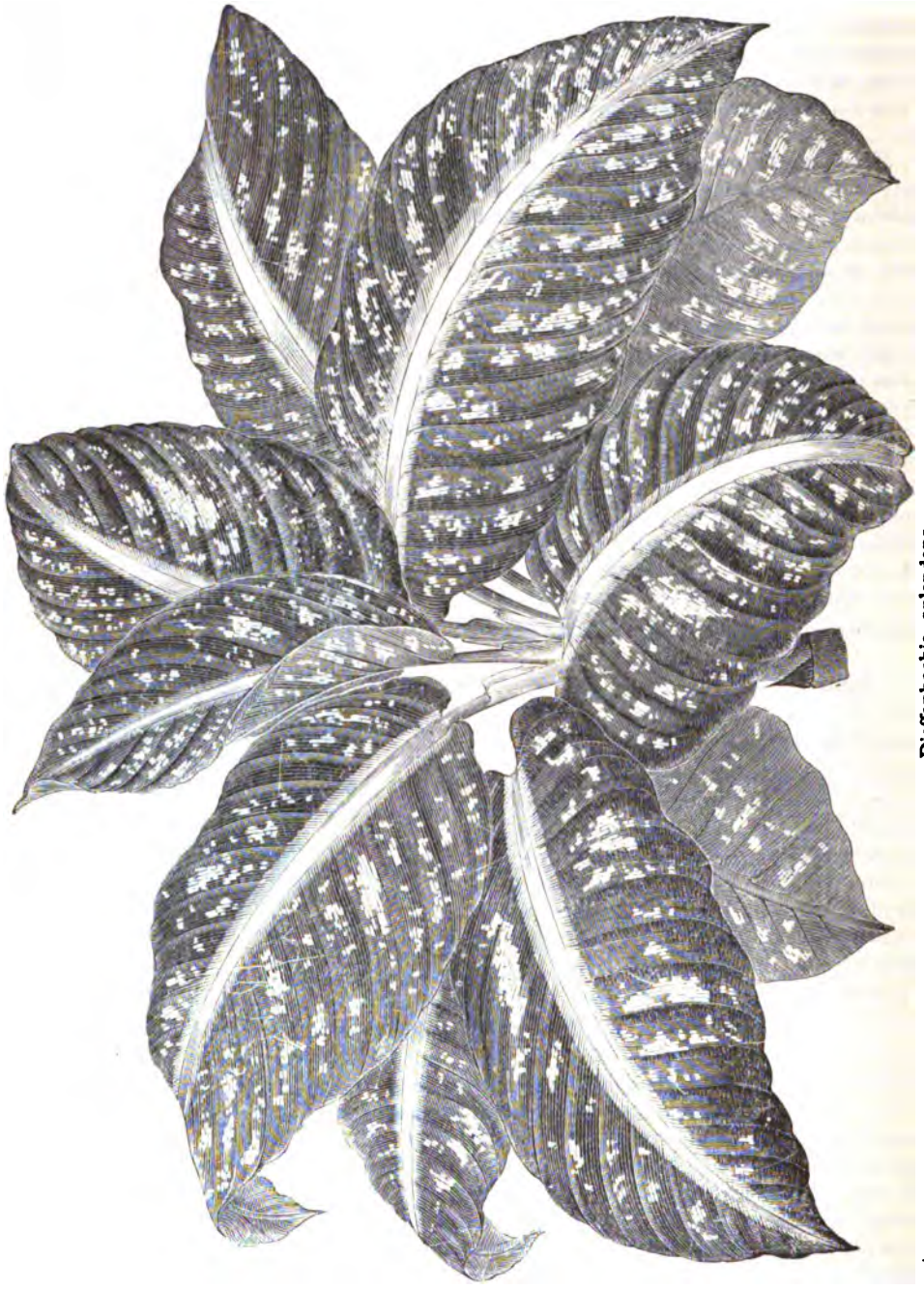
Begonia florida incomparabilis.

the best bedding variety existing and may justly be called "incomparable." The color of the flowers being of a delicate pink does not suffer in the least by the inclemencies of the weather; it is always bright, may it be wet or dry, and this advantage renders it the more conspicuous and valuable. The leaves resemble those of B. Schmidti.

A PURE WHITE FUCHSIA.—Fuchsia Sanderi is much valued by florists in England for cut flower work, though with some objection that it fades sooner than a good cut flower ought to do.

DIEFFENBACHIA SPLENDENS.—A striking plant of great beauty, remarkable for the lustre of its coloring. The stem is faintly mottled with dark and light green. The leaves have a thick ivory-

white mid-rib, and the ground color is of a rich deep velvety bottle-green, with a resplendent lustrous surface, freely marked with whitish striated blotches, which stand out in striking contrast with the dark green ground color. It is a remarkably fine and telling plant, imported from the United States of Colombia. This was one of the twelve New Plants with which Mr. W. Bull gained the First Prize at the International Horticultural Exhibition, held at Ghent in 1878.



Dieffenbachia splendens.

SCRAPS AND QUERIES.

ROSES AND BEDDING PLANTS.—"Mrs. J. G. M.," Buffalo, N. Y., writes: "Your valuable magazine is a most welcome visitor in our household. I do not know what we should do without it. The only trouble with it is, that it offers so much choice in all directions that one is bewildered and knows not where or which to choose. To-day I want to ask if some one will give me a list of some dozen or fifteen roses, (and perhaps five more climbers,) suitable for out-door cultivation in this climate. I mean hardy roses, that may be left in the ground, winters. Of course they would have to be covered in cold weather. Our winters are long and cold. We have a great deal of wind and cloudy weather at all seasons, and our summers are short and never very hot, unless for a few days in August.

"I am building a new house and making a garden in connection with it. There is not very much room; a strip of land 25 feet wide by 125 feet long is about all I have. This has a southern exposure, and I have a piazza and brick walls for climbers. How close together should I plant the roses, and is it better to make one bed for all, or to plant them about among the other flower beds?

"Also, what book of the many published, is it best to buy as a guide to my inexperience, in this matter of roses? I expect to oversee the garden myself, having only a man occasionally to do the heavy work, and weekly grass cutting. Among the list of roses I would like one or two for standards, for the front of the house.

"Also, what size of plant is it best to start with, and how late may they be planted here, and what special preparation does the ground need?

"Is the Swanley white violet only a florists' flower, or would it be worth my while to try it myself? I have a very small greenhouse off my dining room, not much larger than a big bay window, where I can winter small things, but I wanted these roses for out of doors plants, not to need removal.

"Do orchids ever grow in a cool temperature, such as my little flower window would afford at the top? And do they need much sunshine, or will they grow well without?

"I will not ask any more questions now, but will hope some correspondent, or perhaps yourself, will give me a list of reliable varieties of roses that I can hope will do well with loving care, and grow to large plants and free bloomers in a reasonable number of years."

[We should be glad if any correspondent from the vicinity of Buffalo would give more details, so much depends on local circumstances; but, as the season for planting will soon be here, it may be as well to say that of hardy climbing roses we can hardly find fifteen among the ever-blooming classes to stand the winter climate of Buffalo. Of those which are not ever-blooming there are the Prairie Roses, which, by the way, it is surprising have not been more variously improved. We have an admiration for the red crimson Boursalt, and we should even class the Sweet Briar among good climbing roses. Some of the more vigorous hybrid perpetuals are good climbers, and so far south as this we can use such hardy Bourbons as Gloire des Rosamene, and some of the pure unadulterated Noisettes like Musk Cluster and Champney. The whole subject of hardy climbing roses is however well worthy of the attention of specialists in rose culture.

As a general rule roses are more satisfactory in one bed by themselves. In a small place where only hardy hybrid perpetuals are grown, and consequently not much flower at some seasons, geraniums may be grown between the rose plants during summer. Where teas and other truly ever-blooming kinds can be grown, all the space may be given to roses. If geraniums or other plants are to be grown with the roses, two feet apart would be a good distance. If all roses, eighteen inches will do very well.

The writer of this has a number of orchids, such as Stanhopea, Cattleya, Maxillaria and others, which are in baskets. These are hung out of doors under trees or lattice work all summer, and kept in a greenhouse where the temperature goes down to 45° during the winter, and the success is very good.

With these remarks we commend the whole subject as requested to the attention of correspondents.—Ed. G. M.]

SEEDLING BOUVARDIA.—"J. G. D.," New York, desires an opinion of a new seedling Bouvardia, a sample of which he sends. It had been caught in the frost, or got too dry or something. On opening there were only a few black fragments of something which had been.

FLOWERING OF YOUNG CENTURY PLANTS.—Mr. Jacob Hoffner tells a Cincinnati paper: "Last year (1881) I saw in St. Augustine, Florida, several century plants which had flowered during the summer, and some of the flower stalks (while young and tender) had been broken off by the wind some ten to fifteen feet above the surface of the

ground, and the consequence was, the great quantity of sap required to perfect the flowers on so large a plant (if not broken off at the top) forced its way into young plants (of one and two years' growth) which came up from the roots of the parent plant and produced flower stalks of from two to six feet in height, which bloomed and seeded, and the dry specimen here exhibited was taken from the plant."

A BEAUTIFUL VARIEGATED BEGONIA.—Some variegated plants are beautiful, but on the whole there is a good deal of sameness among them, and it is a pleasure to note any departure from this monotony. One of the most beautiful of these departures is a Begonia in the collection of Mr. David Cliffe, Florist, of Germantown. It belongs to the vigorous shrubby class, and with glaucous silvery-nerved leaves. This parent is in itself a pretty kind by the glaucous green of the leaves and the silvery shading of the veins, while the rosy undersurface adds to the attraction. In this sport we have both yellow and white variegations, and a large plant well grown would not we believe be excelled by anything in the whole range of greenhouse plants. It is not simply a variegation of two colors—but of four or five.

PHYLLANTHUS NUMMULAROIDES.—"New subscriber," Baltimore, Md., has a plant named Aralia crassifolia, of which he sends a specimen. It is Phyllanthus nummularoides.

CANTUA BUXIFOLIA.—"Subscriber" writes: "If any of the readers of the MONTHLY have had any experience in the cultivation, and successful flowering of Cantua buxifolia, will they please give me the benefit of it; and where can a plant of Escallonia macrantha be obtained."

ABUTILON INSIGNE.—A correspondent queries: "Do you know whether Abutilon insigne is in cultivation in this country, and if so, where can it be obtained? All of our florists to whom I have applied know nothing about it."

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Pruning of fruit trees, when required, should be proceeded with at favorable opportunities. We write "when required"—for in our climate, more injury is done by the knife than by the neglect to use it. Gooseberries, for instance, are usually ruined by pruning. In Europe, it is customary to thin out the centre well to "let in the sun and air." Here it is the sun and air that ruin them, by inviting mildew; and so the more shoots, the better. Our country farmers are the best gooseberry growers, where weeds run riot, and grass and gooseberries affect a close companionship. Wherever, in fact, the gooseberry can find a cool corner, well shaded from the sun, and with a soil, which is never wet, nor yet by any means dry, there will gooseberries be produced unto you. The English kinds mildew so universally, as to be almost gone out of cultivation south of the St. Lawrence. Nor, indeed, is it to be so much regretted, since the improved seedlings of large size and fine quality, raised from the hardier American species, are becoming known, and their merits appreciated by growers.

The rule, in pruning grape-vines, is to shorten the shoots in proportion to their strength; but, if the advice we have given in former summer hints has been attended to, there will be little disproportion in this matter, as summer pinching of the strong shoots has equalized the strength of the vine. Those who are following any particular system will, of course, prune according to the rules comprising such system. As a general rule, we can only say, excellent grapes can be had by any system of pruning; for the only object of pruning in any case is to get strong shoots to push where they may be desired, or to increase, with the increased vigor of the shoot, which pruning supposes will follow the act, increased size in the fruit it bears.

Raspberries and Blackberries may be planted towards the end of the month; they should be cut down to within a foot of the ground at planting; they will of course, not then bear the next season after planting. But this is a benefit;

no fruit tree should be allowed to bear the same season.

As to the best varieties of fruits to plant, that is a question which a work, intended as ours is for the whole United States, cannot answer. We are continually publishing fruit lists adapted to the different sections in the body of our work, and to them we refer.

There has however been a great change in opinion of late years in regard to the adaptation of varieties to locations. If plants are healthy a much greater range of varieties is found adapted to localities than was at one time thought possible. As little disturbance of the surface roots as possible, with a free surface manuring, has added very much to the list of kinds suited to special locations. In regard to vegetables, those who grow for market have rules of their own, and understand the business. But a few hints for amateurs will be acceptable at this season.

The work for February will, for the most part, consist of preparations for future operations, and particularly for dealing with the manure question. All those kinds that are grown for their leaves or stems, require an abundance of nitrogenous manures, and it is useless to attempt vegetable gardening without it. To this class belong cabbage, lettuce, spinach, etc. The other class which is grown principally for its seeds or pods, as beans, peas, etc., do not require much manure of this character, in fact, they are injured by it. It causes too great a growth of stem and leaf, and the earliness—a great aim in vegetable growing—is injuriously affected. Mineral manures, as wood ashes, bone-dust, etc., are much better for them. For vegetables requiring rich stable manure, it is best that they have it well rotted and decayed. Nothing has yet been found so well fitted for the purpose as old hot-bed dung; though to the smell no trace of "ammonia" remains in it.

One of the most interesting parts of a vegetable garden is a hot-bed for starting seeds early. The end of the month will be time enough for those who have not command of a large supply of stable manure, as the very low temperature we often get at the end of the month soon absorbs all the heat the hot-bed possessed. It is in any event best to put up the beds in the warmest and most sheltered spots we can find, and to keep cold winds from the manure, by covering it with branches of trees, or mats; and the glass should always be covered with mats at night. Tomatoes, egg-plants, peppers and cucumbers, are the first seeds to be sown this way. Cooler frames can be got ready for cauliflower, lettuce, beets, celery and Early York cabbage, a little of which may be sown about the end of the month for the earliest crops. The cauliflower is a particularly valued vegetable, and no expense spared to get them in perfection will be regretted when one's efforts are successful.

Those who have hot-beds will now sow tomatoes, egg-plants, peppers, and other vegetables that can be forwarded by this means; and those who have not, will sow them in boxes or pans, and forward them in windows. Every garden ought to have at least a few hot-bed sashes to forward early vegetables; for if they have no means of applying artificial heat to them, the sash will of itself forward some things considerably.

Many parties like to have turnips sown in spring. The only way to succeed with them is to sow as early as possible, and on a very rich piece of ground, where they may grow speedily. If they do not swell before the hot weather comes, they will certainly run to seed.

About the middle or end of the month, or still later at the North—say the middle of March—celery and late cabbage may be sown. Here we usually sow the second week in March.

All gardens should have beds of herbs. They are always looked for in the fall, and nearly always forgotten in spring. Now is the time to plant Thyme, Sage, Mint, Balm, and other perennial herbs, and Parsley and other seeds of hardy kinds may be sown. When we say "now," it is of course understood to mean where the frost has evidently broken up for the season. Our readers in less favored climes will not forget it when it does.

COMMUNICATIONS.

TO KILL GRUBS AT THE ROOTS OF CABBAGE OR CAULIFLOWER.

BY T. BENNETT.

I am happy to say that through the result of my former investigations I am enabled to throw a little more light on the subject inquired after by two or three of your correspondents, namely—grubworms in cauliflowers and other plants. These are very annoying to gardeners and others. It is very good to be able to find out what a grubworm will finally come to, but to be able to destroy the nuisance in the grub state I think is much better. The cabbage and cauliflower are particularly subject to these pests. The remedy is very simple. To one part of well slacked lime add four parts of fresh wood ashes, together with a small handful of

fine salt to about every peck of the mixture. Let all be well mixed together, and spread over the surface of the ground, well raked in and mixed with the soil at the time of sowing the seed, or transplanting into frames, and I will warrant those grubs will never injure the plants. Also, to the gardener whose geraniums were injured by a grub-worm, let him at the time of planting out, put a handful of this mixture around each one of his plants, and he will not, I am satisfied, have to complain of the matter.

Chambersburg, near Trenton, N. J.

PYRETHRUMS IN CALIFORNIA.

BY T. S. PRICE.

Just now the culture of the Pyrethrums is attracting considerable attention here, not so much as an article of export, but to supply the home demand. Owing to the difficulty experienced in procuring seed very little progress has been made, and the slow germinative qualities, which are particularly marked in the cultivation of P. roseum, have made its production as an article of commerce, almost a failure. However, in the last two or three years, parties near San Francisco and the region adjacent to the Sacramento river, have met with considerable success. Prominent of these parties are Mr. E. Wolleb of Alameda county, and G. M. Milco, Esq., of Stockton, and to these gentlemen is the writer indebted for part of the information contained in this article. Mr. Wolleb has had comparatively little trouble in propagating either P. roseum or P. cinerariæfolium, while Mr. Milco has given his attention principally to the rearing of the latter, from which "Buhach" the popular California insecticide is prepared. Parties in the southern part of the state have cultivated the Pyrethrum with more or less success proportionate to the attention devoted to it. The quality of the home product together with the unsupplied want of an effective insecticide will cause its culture to be watched with intense interest.

Selma, California, Dec. 10th, 1883.

STRAWBERRIES IN NEW HAMPSHIRE.

BY JAMES M. HAYES.

For many years the Wilson Albany has been the leading market berry in our state, but of late other varieties have been introduced and are gradually taking the place of that old standard. If I were asked to state what one of the newer berries I thought was better than the Wilson, I should unhesitatingly say, the Crescent. I know it has the disadvantage of imperfect blossoms, and that it is tart. So is the Wilson the extreme of sourness. But it is a fine runner and a most prolific bearer, and is good enough for most people. Another berry that has given good satisfaction here is the Sharpless, a very fine plant and berry. Glendale and Miner's Prolific have done finely for me and are worthy of attention by cultivators. Of the later introductions I have several I am testing. Amongst them are Manchester, Old Iron Clad, Piper and Jersey Queen. The three first named give promise of succeeding the best. The Manchester is certainly a very fine growing plant, and if the fruit is as good as claimed the only objection that can be raised against it is its imperfect blossom. Old Iron Clad and Piper also sent out strong runners and are every way healthy in appearance, but whether they will sustain their reputation at the north remains to be proved. Should it not be the aim of the introducer, or rather originator, of new varieties of strawberries to send out those with perfect flowers? Is any berry the "one for the million," unless it is perfect? And when they have obtained some valuable variety we hope they will heed the remarks of Prest. Wilder in his address at the recent session of the American Pomological Society, and give it a name that is not vulgar and inappropriate like some of those brought out and named recently.

Dover, New Hampshire.

[There is no need in these days for the introduction of any but hermaphrodite varieties of strawberries.—Ed. G. M.]

EDITORIAL NOTES.

WEARING OUT OF VARIETIES.—Mr. B. Perley Poore says in *American Cultivator* of the wearing out of varieties: "I will not undertake to dispute it. I never dispute anything when I can help it, and often swallow assertions which I do not believe rather than contradict them, but I cannot refrain from respectfully asking where the old varieties of apples, pears and peaches have gone to. They might have died here or there, but they have all disappeared, and in their places we have new varieties, which do not, I think, replace those which have disappeared."

If our friend ever comes to Germantown we will show him Rousselet de Rheims, Early Catharine, Bartlett, Seckel, and many other old varieties of pears quite as good as they ever were, though the

parent trees of some of these we suppose have long gone to decay.

But perhaps a hundred and fifty or two hundred years do not constitute an old variety in a pear.

WAR ON THE CODLING MOTH.—The Riverside (California) fruit growers recently voted to destroy the whole apple crop next year in order to totally eradicate the codling moth, which has settled among them. A subscription will be made in the uninfected districts to compensate the more unfortunate in their sacrifice.

APPLES GRAFTED ON PEARS. — The *Revue Horticole* says that it has been regarded in France as impossible to graft apples on pears, and a successful attempt is regarded as very remarkable. In this country they have been found to unite fairly well, but the apple is short-lived on the pear stock, and therefore the fact has proved here of no practical value.

PEARS AS CATTLE FEED.— The editor of the *Country Gentlemen* says: "The Buffum is the finest and most symmetrical grower of all the pears, and is exceedingly productive, but the best return which the writer of these remarks has been able to obtain from the fruit has been as food for domestic animals, for which, on account of their rich flavor, they have been estimated as worth 25 cents a bushel. An acre planted with this pear would probably yield, when over fifteen years old, an average from the two hundred trees, twelve hundred bushels, or six bushels a tree, although large trees, twenty years or more of age, have occasionally borne over twenty-five bushels in a single season. Twelve hundred bushels, at 25 cents a bushel for feeding, would be worth $300, where there is a herd large enough to consume them all; or at the same rate for a smaller crop."

JAPAN PERSIMON.—In Virginia these seem at home, and are fruiting finely at Norfolk. At the Brambleton nurseries trees bore freely last fall. Some have been produced near the town weighing 9½ ozs.

GOBO OR BURDOCK ROOTS.—A correspondent of the *Garden* says: "In a recent number of the journal of the French National Horticultural Society M. Dyboursk communicates the result of experiments made with Gobo, a species of Burdock, the root of which is much eaten in Japan. The seed was sown early in June in the open air in rich soil, the young plants being eventually thinned out to about one foot apart. In the course of three months the roots had attained the length of two feet and were proportionately thick. Cooked in the manner of salsafy, they were found to be excellent, having much the flavor of cardoons. M. Dyboursk has formed a high opinion of this Japanese vegetable, as, owing to its easy culture and the short time it takes to develop, it will, he thinks, prove of greater value than salsafy or scorzonera, being much superior to them in flavor. Will some of your Scotch correspondents inform me whether the root of the common Burdock is ever eaten as a vegetable in Scotland? and if so, which species? There are two closely resembling each other, Arctium Lappa and A. Bardana, the latter the Bardane of the French, supposed to be eaten in some parts of France. Potentilla anserina, a wayside species, with handsome silvery leaves, is also said to be eaten in Scotland, but I have never yet met with a Scotchman who had eaten of any of these plants."

THE COMING POTATO.—In the old world they are raging on improved potatoes. There, as here, they are fond of getting for speakers on great occasions some great man, whose chief claim as an orator for the occasion is the great ignorance he exhibits of the subject that he talks about. On one of these potato occasions, the great speaker delighted his auditors by expressing his opinion that the time would yet come when a potato would be raised worthy of the human race! If he had spoken this of the coming cook it would have been very commendable. Not one in a hundred of the cooks of our day knows how to cook a potato; and thus it is that the tame water-sogged things are not worthy of the human race! With a little salt and cold water and the potato brought to a boil, then the water poured off, and the pot kept heated for a few minutes to drive off the surplus steam, the potato may be made to rank closely with an orchard fruit.

TO DESTROY CABBAGE WORMS.—Mr. E. L. Sturtevant director of the experimental farm at Geneva, New York, says that an emulsion composed of one ounce of common yellow hard soap, one pint of kerosene oil, and one and one-half gallons of water, kept continually stirred while using to prevent the oil floating on the surface, and used through the rose of a water pot, will destroy all worms that get thoroughly wet with the mixture, and does not injure the plant, or poison those who use the vegetable. So far as we have seen, all insecticides which require water in the application are too laborious, and cause the crops to cost more than they are worth. If any one has used

any of this class to any extent, and will furnish the figures, it would be appreciated by cabbage growers. In a small garden, or on a small scale, it is a good hint, and useful.

LIMA BEANS.—As frequently noted in this magazine, Lima beans may be grown with long branches for stakes, much in the manner that peas are grown.

AMERICAN PEAS IN ENGLAND.—England has been considered especially the land of the pea, and it seems strange to find American varieties have a popular run there. Bliss' American Wonder was well thought of, and now Bliss' Abundance, seems likely to be as successful. It is said that one hundred pods have been gathered from a single plant, and one with sixty-seven is on exhibition in London.

SCRAPS AND QUERIES.

PRAISING NEW FRUITS.—A correspondent protests against our "endeavors to injure a new fruit," because we objected to extravagant praise of it. We do not repeat the name of the fruit in question, because the answer will apply to all fruits. We propose to keep the GARDENERS' MONTHLY within the line of strict truth. If a fruit is put forth as being an inch in diameter when we know it will never exceed three quarters, we purpose to say so, although it still may be a fact that even at three-quarters it will be one-third larger than has ever been known before. As for the threat of "not advertising if such attacks are continued," it may be as well to repeat that the Editor has no pecuniary interest in the magazine whatever—that is wholly the publisher's affair. But the Editor is happy to know that the publisher is one who has sense enough to understand that exact truth in the editorial department is an advantage to the advertising, and that the loss of a lying advertisement is an absolute gain. Purchasers like to buy when they feel that they can trust the advertising as well as the editorial columns. This may be the secret of the heavy advertising patronage which, with very little effort, the magazine receives. Purchasers prefer to buy where all is not fish that comes to net.

NAMES OF PEARS.—A. B. Baker, Poughkeepsie, New York, sent us last September, a box of pears for name, desiring answer through the GARDENERS' MONTHLY. As the replies would scarcely be of interest to any one but our correspondent, we sent reply by mail direct to him, but had it returned to us as "unclaimed." We will therefore say here that it is very difficult to name unripe pears, especially when grown in a distant locality, so we must omit some, but the following are probably correct. No. 1, Flemish Beauty; 3, Bartlett; 4, Seckel; 5, probably Lawrence; 6, Bartlett; 7, Duchesse d'Angouleme; 10, Lawrence; 11, probably Lawrence; 12, B. d'Anjou.

FORESTRY.

COMMUNICATIONS.

BEECH WOOD.

BY L. C. DIEDRICHSEN.

Seeing that in the November number of your valuable and always welcome MONTHLY one of your correspondents complains of his want of success with the cultivation of the beech tree, I hope it will not be without interest to your readers to be informed under what circumstances the red beech (Fagus sylvatica) grows here in Denmark.

The beech is the most common and at the same time the most beautiful forest tree with us. Fascinating and lovely beyond all description is a beech forest, or even a single tree in early spring, when the delicate, glossy, bright-green foliage has just unfolded itself on the graceful, hanging branches, partially shading a gently rolling ground studded with white and blue Anemones, Primulas, Oxalis, and the entire multitude of beautiful flowers, that love to dwell under its spreading crowns. Need we add the enchanting sound of the murmuring brook, or the ever varied ringing music from the throats of hosts of feathered songsters,

amongst them the nightingale, which are almost inseparable from the beech forest in our little country in order to make the scene as perfectly lovely as almost any in nature can be.

Formerly the oak (Quercus Robur) predominated in the Danish forest, but are now fast disappearing for the beech. Young self-sown plants of this beautiful tree grow very luxuriantly even if they are quite overshaded by the crowns of the oaks, and when they grow larger the oaks must give place to the beeches.

The European beech (Fagus sylvatica) is, however, distinguished from the common American beech (Fagus Americana or F. ferruginea) by a more slender growth, with more hanging branches and smaller but more glossy and bright-green foliage, and very likely its claims to soil and situation are also a little different. The beech in this country grows best in a somewhat heavy clay and chalk mixed mould with a moderately moist subsoil. When these conditions exist the tree reaches its finest development. It also does better in low places in the neighborhood of lakes and rivulets and on northern slopes, than in higher localities and on southern slopes. In sandy soil deprived of chalk and in a dry situation it will either not grow at all or it becomes stunted in growth. A soil and situation that is favorable for the growth of evergreens in general will also be suitable for the beech. In laying out beech plantations or ornamental grounds in which the beech is to figure a good result is secured when the young trees are planted amongst other hardy and rapidly growing trees, which afterwards, when the beeches are well advanced and in thrifty growth, are to be gradually removed.

In older parks or pleasure-grounds, where in the course of time ugly openings under trees with tall naked trunks have made their appearance, I use beeches (the European variety) for covering, when favorable conditions for their growth exist or may be artificially obtained by subsoiling and by supplying clay and chalky mould. By proper trimming, the beech may easily be kept in bush-form where it is desired. In order to produce a winter decoration, I plant Hollies (Ilex Aquifolium) in front of and between the beeches, as the dark-green foliage of the Hollies make a good effect against the winter withered red foliage of the beeches, and by planting the ground underneath and between the trees closely with white, red and blue Anemones, Primulas, Crocus, Snow-drops and many other spring flowers, we may, with the bright green foliage of the beeches, in spring give such ornamental plantations a character fresh and lovely as the woods in this country above described. *Landscape Gardener, Aarhus, Denmark, Dec.,'83.*

[In addition to the pleasure of receiving this interesting communication from so distant a part of our circle of readers, is it also to note the excellent English in which it is written by one who has had to acquire the language. We give it just as received, without alteration even in punctuation.—Ed. G. M.]

WOOD OF SALIX CORDATA, VARIETY VESTITA.

BY EX-GOVERNOR FURNAS.

I send you by this mail, a small bit of wood, Salix cordata, var. vestita, showing its durable characteristic. In spring, 1867, I put out a line of Osage hedge. I cut some green willow poles, of small size, and laid along the line next the plants, on the ground, as a slight protection for the time being, of the young plants. One of the poles happened to be the S. cor. v. ves. Last week, my son, cleaning out along the hedge found this pole, where it had laid, in the grass and weeds under the hedge for seventeen years. You will see how well it is preserved, and how perfectly sound the red wood is still. The white or sap wood is rotted off. *Brownville, Neb., Dec. 29th, 1883.*

[Sound and solid and certainly strong evidence in favor of Governor Furnas' view that this variety of willow is of great value as a timber tree.—Ed. G. M.]

RANGE OF THE WHITE SPRUCE.

BY R. DOUGLAS.

Your comments on the Beech Tree do not help me out of my dilemma at all, and do not seem to have been understood. The trees will grow here, for awhile, but grow poorly, and soon die out; but no matter, all I wanted to know, and have others know, was, that if they and the chestnut would not grow in strong limestone soils, there would be no use planting them in such land.

I see on page 339, November number, that W. D. K., of Virginia, found the white spruce growing on the top of White Top Mountain. This tree seems to have a wider range than any other of our conifers, and flourishes in a drier atmosphere than any other spruce. Professor Aughey, State Botanist of Nebraska, stated that the Engelmann spruce was found in Northwest Nebraska; this I doubted very much, as it is only found on the highest altitudes. However, to make sure, I went

there to see, and found it to be the white spruce. I followed it into the Black Hills, and there I was informed by Professor Jenney that a different species was to be found in the highest altitudes, naming Terry's Peak. I explored to the very summit of Terry's Peak, only about fifty feet lower than the highest peak in the Black Hills, and found the white spruce growing within six feet of the summit. It is the only conifer in the Black Hills aside from Pinus ponderosa, which is the prevailing tree. This tree, the white spruce, seems just as much at home with ponderosa, in the Black Hills, as with P. Banksiana, in Minnesota. It grows in more exposed situations and in a drier atmosphere than the Norway spruce could be made to stand, and never suffers in foliage in the spring after a hard winter as the Norway spruce does on the prairies. I believe it to be (next to the Colorado spruces) by far the best spruce for the Northwestern prairies. It is not so rapid in growth as the Norway, but holds its foliage at the base much better than the black or the red spruce, which latter, although not allowed by botanists to be distinct from the black spruce, reproduces itself invariably from seeds, varies in form, color, general appearance and even in cone from the black, and—I may as well out with it—is different from the black spruce.

Waukegan, Ills., Nov. 21st, 1883.

[We are a little uncertain what is meant by white spruce. The white spruce of nurseries is the black spruce of botanists, and the white spruce of botanists is the black spruce of the cultivator. When botanists write "Abies alba, white spruce," they mean what is called black spruce in gardens. —Ed. G. M.]

EDITORIAL NOTES.

A FORESTRY CONVENTION.—We understand that Commissioner Loring will call together persons interested in Forestry to meet in Washington about 15th of February, but at this writing we have no authoritative date.

FORESTRY IN DAKOTA.—We learn with great pleasure that the North Pacific R. R. Co. have seen the folly of cheap forest planting in cheap ways, and have entered into a contract with Douglas & Son for 1,740,800 trees, the coming spring. They are to be planted 4 × 4 feet. This is thick but is to allow for some loss, D. & Son guaranteeing a final growth of 2000 to the acre. It is a great task for one of Mr. Douglas' advanced years, and, let us hope, independent means; but when the proper time for a history of American Forestry shall be written, the practical efforts of Mr. Douglas to show what can be done even when he has little other incentive but to serve the great forestry cause, will entitle him to a high position among the apostles of tree planting.

SCRAPS AND QUERIES.

QUERIES ABOUT NUT TREES.—"S. A. W.," New York, writes: "I notice that a discussion on nuts is being carried on in some of the weekly agricultural papers. Thus far, however, little real light has been shed upon some moot points upon which I believe many farmers like myself would like to have definite and accurate information. These points are:

"1. Can the pecan nut (Carya olivæformis) be grown and fruited at the north—say as high as latitude 41° or 42° in New England or northern New York? Have pecan grafts upon other varieties ever been tried?

"2. Would the marron or Spanish chestnut prove hardy and productive as far north as latitude 42° —or even 42½° east of the Alleghenies? That it will grow and fruit freely south of latitude 40° may be regarded as practically settled.

"3. What is known of the Japan chestnut (Castanea Japonica)? Has that been grown and fruited here, and is it as hardy and productive as our common chestnut?

"4. Would you recommend the English filbert for those who wanted to raise nuts for market, as a steady cropper and a hardy tree?

"Now these are points which can only be determined by actual experiment. So many trees and shrubs, natives of warm climates, and presumably tender or half hardy, are known to be perfectly hardy at the north, that it is impossible to say without trial what will or will not thrive in more rigorous latitudes. Among the readers of the MONTHLY, however, there must be some, perhaps many, who have tested these nut bearing trees. What is the result of their experience?"

[The pecan nut will not fruit to any advantage north of Philadelphia; and scarcely there; a few cultivated trees bear a few nuts once in a while, but not worth speaking of. 42° would be about Boston, and we know no reason why the chestnut should not fruit there. It is not safe however to fix lines by latitudes. Climate does not follow these lines.

The Japan chestnut has been grown several years in the Atlantic States. It is perfectly hardy and seems dwarf; no doubt it has fruited, but we have no record of the fact.

The filbert is found one of the most unreliable of all nut trees in the United States. The male flowers are brought forward by a moderate temperature not sufficient to move the female flowers, and there is no pollen for fertilization left when the female flowers appear in spring.

As you truly observe, there is an immense amount written about trees and forestry generally by intelligent people which is misleading for want of practical experience. Because a tree is "hardy," or comes from a "cold climate," is but a fraction in the great whole which makes up success.—Ed. G. M.]

OSIERS.—A correspondent desires to know whether the cultivation of willows for basket making is now carried on to any extent in this country, and if so, where? and also would be glad of any other information in relation to the subject.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

IN SEARCH OF CACTUSES.

BY A. L. SILER.

In the following paper I will try and give the readers of the GARDENERS' MONTHLY a short history of the wandering of a cactus collector in the spring of 1883. Crossing the rim of the great basin on the 29th day of March under a cloudless sky, I drove to Swaaps Springs in the lower end of Link valley, where I camped for the night in a heavy rain storm. On the morning of the 30th, I took a pack horse and went into the western hills and collected a few seed of Juniperus Californica var. Utahense, and one hundred Mamillaria species, which I safely stored away, and started for Johnson, a small settlement on the Southern border of Utah. For the first ten miles the rain poured, and as the evening drew on to night the snow came down until it was two inches deep, when I camped in a patch of very wet sage brushes in Johnson cañon, under the lee of a ledge of trap. After searching the ledge for some distance for a dry stick, I was rewarded by finding a rat's nest composed of dry sticks, corn-cobs, bones, and a little of everything else that was portable in the neighborhood. Out of this I soon had a fire, made me a cup of tea, attended to the wants of my team, and crawled into my wagon, wet, cold and despondent, but nature soon triumphed over care, and I was asleep after two days' travel, thirty-five miles from my starting point.

The next day's travel was without interest, unless stopping every few rods to push the mud out of my wagon wheels, and night found me at the house of my friend, Mr. Wm. Lewis, by a comfortable fire with the savory smell of boiling coffee and fried bacon and eggs coming in from the kitchen. Supper was soon over, horses attended to, and to bed.

April the first broke fine and clear as an April day, with a heavy hoar-frost on the ground. In a box in the door yard I found a dead specimen of Echinocactus Xeranthemoides, which I sent to Dr. Engleman, the only specimen living or dead that has ever come under the eye of that lover of nature, and probably the only one ever seen by a botanist. Plants collected on the 30th put out, I started for Pahriah to collect cacti. At that point but little of interest on this trip until within two miles of the settlement I came on to Fallugia paradoxa with a single flower on it. Berberis Fremontii was in its beauty, covered with a yellow fragrant flower. Shepherdia rotundifolia and Cowania Mexicana find a home here, but neither was in flower. Arriving at Pahriah I found that small hamlet feeling much better than I left the horticulturists at Kanab, as they had a partial crop of fruit, of apples, pears, peaches and plums left, while Kanab had lost all. Two days spent at this place collecting Echinocactus Whipplei in the rain, and I was ready to retrace my steps to Kanab, and on my return trip I turned aside from the main road to Navajoe wells to collect Cereus Engelmannii, but they were very scarce here. I found growing on

the hard sand rock with sand enough only to cover its roots, a single bunch of Ranunculus Andersonii, the second plant that I have ever seen in flower. The Navajoe wells are two holes dug out of the sandstone, six feet deep, that afford a very small supply of poor water, but it is cool and quite a treat after being twenty-four hours without water. A halt in Kanab long enough to put out my find, and I start out into the wildest, dryest country that this deponent ever visited.

Two days' travel brought me at ten o'clock at night into Kanab cañon, at the mouth of the Buckskin. Water keg empty. It was dark, and my prospecting for water not proving a success, I went to bed rather lonesome, without any certainty of finding Slido Springs, which was reported to be the only water in the cañon.

When daylight had come after a long night, I started out for Slido Springs, but the search was fruitless, and I, in retracing my steps, came to the wash in the cañon a few rods below my wagon, and found water; but such water! It is surprising that some energetic pill man has not started a factory here, as all the ingredients for a first-class cathartic are in this little stream. As it appeared very difficult to climb the ledges of red sandstone directly west of my camp (and the cactus grows only on the west side of the cañon), I went down the cañon two or three miles to where the water sunk in the sand, and made my camp. I found Ptelea angustifolia growing here in great abundance, and as it was in flower, I collected some very fine specimens for the herbarium. I also found a very thorny tree here of branching, straggling habit. As it had not put out its leaves, I was unable to decide as to what it was, but from a bunch of dry leaves I found, I concluded it was a locust or mimosa. In a niche of the rock I found a Cercis occidentalis, the Pacific Judas tree, in full leaf and flower; flowers purple and abundant. This was the largest specimen that I saw in the cañon, and was over twenty-five feet in height. Junipers, pinion pines, oaks, cottonwoods, and other brush filled out the list of timbers growing in the cañon, and on the benches alongside of it; but cactus was what I was on the hunt for. After pressing a few fine specimens of such things as were in flower, I went for the western bench and ledges, where I soon found Echinocactus cylindricus, most of them large, and such as would draw a smile from the lover of the beautiful. I will not undertake to give a minute description of them, but that your readers may have some understanding of what they were like, I will say that I counted thirty-three in one clump of sizes varying from a breakfast plate to an egg, and all packed together into such a compact, almost round ball, that they could not, to all appearance, have been put together more solid under the stokes of a trip hammer, and this covered with round, straw-red spines three inches long. I measured one of the largest specimens and found that it was twenty-eight inches high, and twenty-seven inches in circumference. I collected what I could find of this variety that were small enough to ship to my customers and friends, but found plants of curious size very scarce. Opuntia Missouriensis were very abundant, and on this bench I found one Mamillaria phellosperma, or fish-hook cactus, the rarest species to be found in this country. After a two days' search for Echinocactus xeranthemoides without finding it, I broke camp and started down the cañon, hoping to find the dripping springs at which it was said some very fine Adiantums were growing. After riding a short distance I came on to Nolina erumpans, and until Dr. Engelmann told me it was in cultivation, I was much elated over it, believing that it was new. It was certainly new to me.

I had gone but a short distance when I discovered on a ledge, a hundred or more feet above my head, a bunch of yellow flowers. After a little search I found a crevice in the rock worn by the water; up this I crawled, finding on my way a very fine bunch of Notholæna tenere; and upon gaining the summit, I found myself on a table of red sandstone of many acres extent, with here and there, where the sand had caught in the crevices, Physaria Newberryii, which I quickly put into my plant press, and after a search for cactus, crept down into the wash and resumed my journey, which I found difficult and sometimes dangerous. Coming out on to a small bottom around which the wash swept in a gentle curve, I found Opuntia chlorotica in abundance, very large specimens four and five feet high and as many feet in diameter through their tops. There was another very fine Opuntia growing here with thick, oval-shaped joints, from a foot to fifteen inches in length, growing one on the end of another, until they extended on the ground for several feet. These would make fine ladder plants in a greenhouse. Opuntias are not admired nor looked after. Of course the little ones are not striking, but who that has ever seen one of the above could pass it without admiring it? The person that could would certainly be no lover of cactus.

Failing after a half day's travel to find the very

one that I wanted, I retraced my steps to my camp and spent the next two days in collecting Cereus Engelmanni, Echinocereus phœniceus and Nolina erumpans, and packing them to be hauled over a rough and rocky road, I retraced my steps, passing through a grove of very large Cowania Mexicana. I reached Kanab after an absence of nine days.

Packing plants consumed two days. I was off for the West, knowing that a fine and probably undescribed species of cactus grew about Pipo and Cottonwood Springs. I stopped and made a collection at these points and found that my conjecture was right, as Dr. Engelmann has named it Echinocactus Sileri. It is a very fine Mamillaria-looking plant, growing on a gypsum soil, which is something very rare for cactus; as the other varieties in this country all grow on sand or gravel, except Mamillaria vivipara var. Neo-Mexicana and a species which grows on clay soil usually.

May-day I left the Clara settlement for the Beaver Dam Mountains to finish up my collection, and at night found myself amongst the Joshuas (Yucca brevifolia) in a rain storm. Here I found Echinocactus Lecontii, Echinocactus Johnsonii and Mamillaria chlorantha, and soon had them safely stowed away in my wagon and was on the return trip.

There were but two plants on this part of the journey that were very attractive. Opuntia rutila, with its large purple flowers, and Audibertia incana, which was in full flower. While on this part of the journey I found two small shrubs of that very rare plant or bush, Patalonyx Parryi; and growing in the crevices of the rocks, I found a hard-wood Pentstemon which I have learned has been named P. Sileri; neither of these plants were in flower, and I did not get a specimen into my plant press.

Hillsdale, Utah.

THE JEWISH CITRON.

BY DR. VLADIMIR DE NIEDMAN.

In looking over the last number of the GARDENERS' MONTHLY, and from among the many interesting subjects my attention was called to the remarks on the "Jewish Citron," in which I could not fail to recognize an old acquaintance of my younger days. In the South-western portion of my native home, Russia, where the Semitic race is well represented, and where to this day they strictly adhere to all the old acquired customs and fashions, more particularly to a full observance of all traditional rites of Talmud—there it fell to my good luck to notice a peculiar egg or pear-shaped warty orange used as an ornament at each harvest feast or feast of the tabernacle (Laubhüttenfest); and this fruit is undoubtedly the "Esrog" mentioned in the MONTHLY. I think I am correct in the statement of its only use as an ornament, as I recollect, and only too well, on one occasion, where inquisitiveness had the better of me, what forcible impression the sour acrid taste of the fruit must have produced on my mind, judging by the hearty laugh that followed the well defined expression on my face at that time. In order to excite and aggravate our Jewish friends, we used to title this fruit "Adam's apple," taking the ground, that this was the sort of "sour apple" Adam was tempted to eat in the "Garden of Eden," upholding that the teeth-like impressions on the rind were a sufficient proof thereof. But, be this as it may, my impression is, that "Esrog" is also identical with the fruit "Hadar," so mentioned in the third book of Moses. There is but little doubt left, that the "Esrog" is a peculiar variety of "Citrus Medica (Riso), which has preserved its identity to this day; as I know of every case of fruit that is shipped to have a certificate as to their correctness from the head Rabbi of the locality where they were grown and gathered. The citrus comes historically from Media, wherefrom it was taken to Persia, and later to Greece—and about the same time there is a record of its cultivation in Palestine. To-day the "Esrog" tree claims its home in Montenegro, Calabria, Sicily and Riviera de Genova; the common name of it in Italy is, I believe, "Cedro all Ebreo."

U. S. Botanical Garden, Washington, D. C.

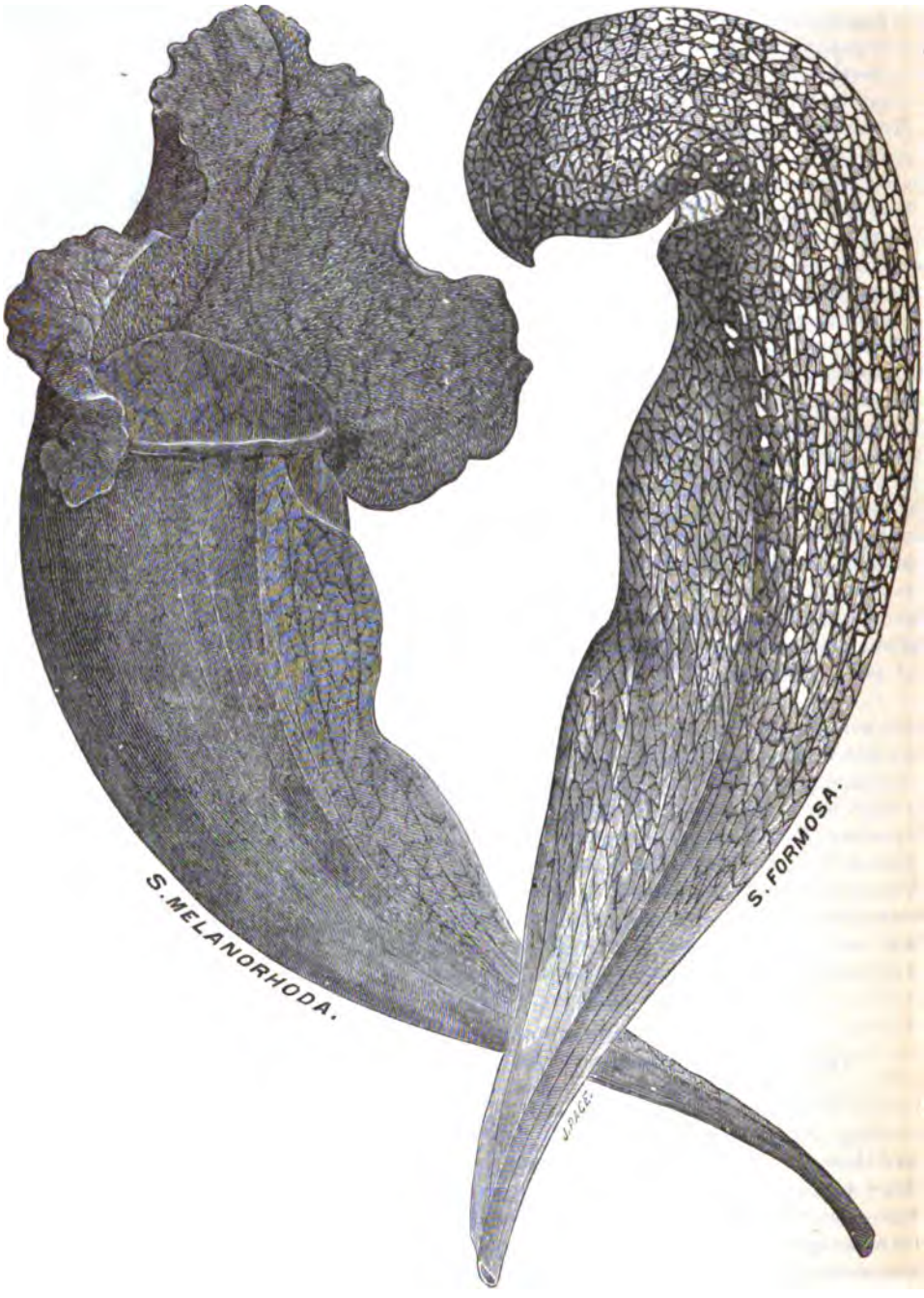
[It still remains a matter of interest why this particular variety of Citrus Medica should be set apart for this purpose, and be regarded as so essential a part in the ceremony as to follow the Jews over the earth wherever it is at all practicable to reach them.—Ed. G. M.]

EDITORIAL NOTES.

ORIGIN OF THE APRICOT.—De Candolle inclines to the belief that the apricot, like the peach, is a native of China; that it spread thence at the time of the first Chinese embassy to the westward, about 100 B. C., and that the specimens found growing wild in Western Asia and the adjoining countries are probably escapes from cultivation.

HYBRID SARRACENIAS.—There was a time when naturalists believed that hybrids were sterile, and

therefore hybridity had no influence in any question connected with the origin of species. When it was found that they were by no means always sterile, that sterility was rather exceptional than the rule, then the believer in the fixity of species comforted himself that seedlings from hybrids would at least return to the original parent forms. But this again has been disproved by experience,



Hybrid Sarracenias.

and it is found that a hybrid is just as able to perpetuate its form and characteristics by seed as though the new introduction came in the ordinary methods of variation.

Naturalists now do not look on hybrids and variations with contempt. They welcome them as assisting in giving the genealogies on which the knowledge of species rests.

We have here two hybrid pitcher plants from our Sarracenias introduced by Messrs. Veitch and Son of London, which, besides being of interest to American botanists, are beautiful ornaments of gardens, wherever swamps can be commanded, or in pots and saucers of water, in ordinary floricultural work.

Sarracenia formosa.—A beautiful hybrid raised from S. psittacina and S. variolaris in which the leading characteristics of these two species are intimately blended. The pitchers have more of the decumbent habit of S. psittacina than of the erect growth of S. variolaris, and are about intermediate in length between those of the two parents. The broad lateral wing is also intermediate in form, while the beak-like lid of the pitcher is altogether that of S. psittacina. All the upper portion of the pitcher has a bright crimson reticulated nervation with the characteristic white spotting of S. variolaris; the basal portion is pale fulvous green. The elegant contour of the plant together with its peculiar coloration, in which it offers a remarkable contrast to every other hybrid Sarracenia in cultivation, renders it one of the most distinct, and, at the same time, one of the handsomest of the genus.

Sarracenia melanorhoda.—One of the most striking of the hybrids raised in Veitch's Nursery. It was obtained from S. Stevensii, crossed with S. purpurea. The pitchers are semi-decumbent, or about intermediate in position between the erect ones of S. Stevensii, and the prostrate ones of S. purpurea, giving the plant a very elegant contour. They are elongated, funnel-shaped, gradually increasing in diameter from the base to the aperture and furnished with a broad wing on the upper side. When mature they are blood-red veined with blackish crimson. The lamina or lid of the pitcher is erect and crisped; it is beautifully veined with blackish crimson on a reddish yellow ground, and on the side facing the aperture, thickly studded with short white hispid hairs.

THE CAMBRIDGE HERBARIUM.—This magnificent herbarium, in species and specimens, is probably double the size of any in this country. We do not know the exact number of species represented, nor perhaps do those in charge, but it probably approaches three-fourths of all known. The number described in the whole flora of the earth, is believed to be about 100,000.

RAINFALL OF THE LAST TEN YEARS IN THE ATLANTIC PORTION OF THE UNITED STATES.—A paper on the average rainfall of the last ten years has appeared from the Signal Service Department at Washington. Our rains come from the vapor which rises under the warm suns over the Gulf of Mexico. The ice of the North prepares a cold heavy current, which rolling down towards the lighter column of the Gulf draws the lighter northward to fill the vacuum. As the colder meets the warmer rain is precipitated, and this would be exactly the same if there were not a tree on the whole Atlantic coast. These show that notwithstanding the awful destruction of the forests of which the newspapers and some magazines tell us, the rainfall of the past ten years is just the same as that of the ten years previous. It is the deminution of the ice towards the pole that we have to fear, rather than the diminution of the forests, when we calculate on our country becoming an "arid treeless waste."

ALCOHOL FROM MELONS.—It is said that it has been found that a truly surprising yield of alcohol has been obtained from the melon.

SCRAPS AND QUERIES.

THE JEWISH CITRON OR ESROG.—W. R. Gerard, New York, writes: "Referring to a note in the MONTHLY, asking for information regarding the "Esrog," and where it is stated that the fruit is also called "Apple of Paradise," I would say that Citrus decumana, L., is known in Germany as "Paradysapfel" (Paradise apple) and its thick rind is there made into "citron."

[All the forms of citrus decumana we are acquainted with, have smooth rinds. Could the rough one referred to belong to this species?—Ed. G. M.]

HONEYSUCKLE APPLE. — Jonathan Primrose wants to know "the botanical name of the shrub that produces the fruit which is known throughout New England as Honeysuckle apple. It ripens I think in June, is very sweet and delicious."

[The Editor doesn't know.]

LITERATURE. TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

DOSORIS—RESIDENCE OF C. A. DANA, NEAR GLEN COVE, LONG ISLAND.

BY J. R. TRUMPY.

This remarkable place can be reached from Hunter's Point by the Long Island Railroad in about 2½ hours. 1½ hours by railroad to Glen Cove, and 1½ hours by horse power to Dosoris. It is a small island of about 50 acres, connected by a bridge with the main island. I do not wonder that Mr. Dana has his heart in this place, the indomitable perseverance he has shown against so many natural obstacles, all the bad winds from all quarters, salt spray against the plants and poor soil; but for all this he has succeeded in making a real paradise out of a barren island. Let gentlemen see for themselves what a man can do with horticultural love, money and perseverance. I am simply going to give a few notes on the salient features of different trees and plants.

You will notice at once the superb Piceas Nordmanniana, cilica, Cephalonica, nobilis. Mr. Dana had most of the plants named, from the Kissena nurseries; having explained to him how easy it was to keep said trees in beauty for a long time by pinching, he had the good sense to do so, and most often with his own hands. Hence his reward. There is one, Picea nobilis glauca, which I grafted in 1858 is worth a journey to see, for any one who takes interest in such trees. Besides the above he has Picea magnifica, P. pectinata pendula, P. pectinata compacta, P. Pichta, P. concolor, P. brachyphilla, P. Japonica, named for want of a proper name until better determined. We received it through Mr. Thomas Hogg with no name. This Picea in question is one of the foremost of the whole; as hardy as the Picea Nordmanniana, nearly as good a grower, soft in its touch, intensely glaucus underneath, and of very fine perfume.

Of Abies, A. pungens glauca, a pretty specimen, stands first. A. orientalis, several fine specimens; A. Menziesii, A. Morinda viridis, hardier than the ordinary A. Morinda; A. alba aurea variegata, A. nigra, A. cœrulea. Here you can see how very superior the last three varieties are for exposed situations over A. excelsa, A. elata or A. auracariodies, as Mr. Probasco, of Cincinnati, calls it. It originated at the old Parsons & Company's nurseries. I grafted the first plant in 1860. A remarkable variety for a landscape artist, as it will take the place of Araucaria imbricata, this last not being hardy North. A. inverta pendula, A. Gregoriana, A. nigra pumila and many others too long to mention.

The Pinus are represented as follows: Pinus Koræensis, P. Strobus nivea, P. Strobus monticola, P. excelsa, P. Strobus pumila, P. cembra, P. uncinata erecta, P. mughus, P. mughus compacta, P. Sylvestris pumila, P. pungens, P. Inops, P. massoniana, P. massoniana aurea, P. massoniana variegata, P. densiflora. The last four from Japan, all extra fine and hardy. Of Californian pines, P. ponderosa, P. Sabiniana, P. Jeffreyii, P. monophylla or Fremontiana and many others.

Of Retinosporas the leading ones are: Retinospora obtusa, R. nana aurea, R. obtusa gracilis; of this last there are two superb specimens. R. pisifera, R. pisifera nana variegata, R. filifera, R. filifera aurea, R. lycopodioides, R. filicoides, R. plumosa, R. plumosa aurea, R. plumosa argentea variegata and others.

The most prominent of Biotas are, Biota aurea B. aurea elegantissima, B. filiformis.

Of Taxus there are T. baccata aurea, T. baccata elegantissima, T. adpressa, T. cuspidata. This last from Japan.

Cedrus deodora, C. Atlantica, Podocarpus Japonica, Thujopsis Standishii, Thujopsis borealis; in fact no end of varieties of Thujias and other evergreens. I only mentioned the most prominent, of which there are fine specimens.

In ornamental trees and shrubs there are fine Fagus sylvatica atropurpurea, F. sylvatica laciniata, Quercus robur fastigiata, Q. robur nigricans, Q. robur argentea variegata, Q. robur concordia, a very fine specimen; Q. robur pendula, Q. panonica, Q. Daïmio from Japan. Fine specimens of Ulmus Montana camperdownii pendula, U. fulva pendula, Tilia argentea, T. sulphurea, this last, one of the very best lindens, keeping its glossy green leaves longer than the other varieties.

Corylus avellana pendula, Betula alba Youngii pendula, B. alba laciniata, B. alba atropurpurea, Magnolia hypoleuca, M. parviflora, M. Lenne, M. conspicua, M. soulangeana, M. stellata, and others.

Cornus florida pendula, two large specimens, which Mr. Dana had from Mr. Meehan; no doubt it will be one of the most distinct and lasting of weeping trees. So also will be Cornus Florida flora rosea, which he received from us. These are only a few of the most prominent deciduous ornamental trees and shrubs of the large collection that he has besides. The best collection of Japan maples to be seen in a private place will be found here. He has also the largest collection of hardy Azaleas to be found in a private place in this country.

Of hardy Rhododendrons there is a large bed, a good beginning with more to follow. I think Mr. Dana has only just begun; one of these days he will likely build a Rhododendron house, for the half hardy kinds. You can put so many other plants with them to make them interesting. A private gentleman with means ought to have such a house. He has a good beginning of Orchids, stove and greenhouse plants, under the care of Mr. Falconer. We need not apprehend any retrograding where he is.

Now I come to a branch of horticulture which I believe Mr. Dana is the first American gentleman that took a liking to, the French method of training fruit trees and grape vines. This department has been established by Mr. Charles Bulot, a French gardener, and a master of this branch of horticulture. This department is worth seeing in conjunction with the mushroom cellar, and well managed French vegetable garden.

Flushing L. I., N. Y.

HORTICULTURAL IMPOSTORS.

BY H. G. WALKER.

Every year the country is canvassed by agents selling trees; some no doubt are honest, but a great many are first-class frauds, not only charging enormous prices for their something extraordinary, but filling their orders for these wonderful things with the cheapest and often the poorest varieties that can be purchased; which are often obtained from the nearest nursery, caring nothing what the fruit will be so it is a fair looking tree.

This last summer an agent sold hundreds of apple trees that he claimed were grafted on imported Siberian stocks, price $5.00 per dozen; and no less than a dozen sold to one man was his rule.

Now we know this was the veriest humbug; even if the roots had been imported from Siberia they would be no better than those grown in this country if as good.

Another agent had the audacity to sell California grapes in New Albany and fill the same with vines with the label yet to them saying, "Concord." This was not so bad for the purchaser, however, as the Concord is a very good grape. He only paid $1.80 more on each vine than the same could be purchased for at any nursery.

A few years ago a nurseryman in our state had a lot of seedling peach trees that had been cut off and had sent up several fine looking shoots; these he was digging up and throwing over the fence. A man coming along asked for them and they were given to him. These trees were sold at $1.00 each, the trees being double and triple grafted according to his representations, and much more valuable than if only one scion or bud was inserted.

About every three or four years the "Blue Rosemen" visit Louisville. I visited one of these establishments and found for sale strawberry trees that would bear the same year they were set out, asparagus roots that would bear in three weeks after setting out, price $3.00 per dozen. Judging by the picture, and which he said was correct, it was worth the money just to look at such wonderful stocks.

Then there was the Gladiolus with double flowers and twice as prolific of flowers as any to be had in this country.

Tree roses that bore twelve different kinds of roses and monthly; pear trees which surpassed any thing to be obtained in this country, every tree bearing pears weighing pounds; raspberries that were monthly—we don't remember whether they bore all winter or not. They were many other things equally rare, including cherry trees that bore cherries an inch in diameter and without seeds.

We wonder why some enterprising man don't change business a little and sell geese that lay golden eggs, but their policy seems to be just the reverse—sell to geese and get the golden egg.

New Albany, Indiana.

[As no reader of the GARDENERS' MONTHLY would be caught by such barefaced frauds as these, no cure is accomplished by exposing them in our magazine. Only those who are too penurious to subscribe for a good paper get caught by these sharpers, and we have not the slightest sympathy with them. There are large numbers of honest

agents, and fair-minded dealers. Our experience is that these far outnumber the rogues. It ought to be their place to combine and show the people the rascalities of the wolves in sheep's clothing who are preying on penurious ignorance. A large number of honest dealers expect people to trust their word and honor, and take it as an impertinence if the customer puts the question of "who are you?" The honest agent expects the buyer to wholly trust a stranger, and the dishonest one finds his strongest aid in this practice. When the people who do not subscribe to good papers are taught by honest agents always to demand credentials from well known persons, there will not be much room for such frauds as our correspondent describes.—Ed. G. M.]

RECOLLECTIONS OF A RAMBLE TO SUDBURY PARK, DERBYSHIRE, ENG., 1881.

BY WM. T. HARDING.

A delightful ramble of some six miles from Barton, through the winding green lanes, among scattered clumps of furze, whin, or gorse, Ulex Europæus, and the wiry-looking green broom, Genista scoparius, which still flourishes along the roadsides of Needwood forest, brought me to the quaint and historical old town of Tutbury. And now and anon, while loitering under the shadow of the old hawthorne hedges, melodious with the song of the linnet, bullfinch and thrush, whose plaintive sonnets mingled with the "wood notes wild, of many a forest bird," I caught glimpses of the ivy-covered ruins of the ancient castle, whose dismantled turrets loomed up picturesquely before me.

Tutbury Castle! "Mouldering in the imploring beauty of decay," what pleasant memories cling around thy crumbling walls! Many are the times when in happy boyhood, with my young brothers, have I frolicked in juvenile sport about thy shattered donjon-keep and fallen towers. More than fifty years, with, to me, their many and strange vicissitudes, have passed by since then. But this time, I had no beloved companions, they had gone to the better land! But everything reminded me of them, as little change seemed to have taken place since I left it, years ago; with the exception of the ivy, which had assumed a more sturdy tree-like form, where it reared its evergreen branches above the old battlements it hugged so closely.

During the fierce excitement of the turbulent times, now happily gone by, when knightly warriors clad in the panoply of steel, and high bred "tissued dames," moved in stately pomp and pride through its emblazoned courts and spacious halls, it was a castle of considerable importance. And, besides being a famous hunting resort of many English kings, it was noted as one of strongholds where Mary, Queen of Scots, was kept a prisoner. In my keeping is an antique silver coin, of Edward II.'s time (accidentally discovered with thousands of others), which the Earl of Lancaster buried, when fleeing from his castle, pursued by his enraged sovereign.

Crossing the noble bridge which spans the river Dove, a noted trout stream, and made memorable by the pen of that pleasant piscator, Izaak Walton, author of "The Complete Angler, or Contemplative Man's Recreation, 1563," conjointly with his good friend, Charles Cotton, who wrote a supplementary part to this delightful old book, I quietly wended my way towards Sudbury, situated some three or four miles further up the stream. Leaving "the king's highway," for the less frequented byways and shady lanes, where on every side spreading over the splendid landscape, were highly cultivated farms, divided and sub-divided with closely clipped hedges. All the farm-houses appeared to be of the substantial and commodious kind, built of brick or stone. And indicative of comfort and refinement within, were the well-kept lawns and gardens, which invariably form a pleasant part of the picture of English farm life. As I left behind me one of these picturesque dwelling places, I enjoyed a brief chat with a burly old yeoman, who, while leaning over the garden gate, persisted in asserting that "the Yankeefied Cobbett had ruined all the apple orchards in England with the American blight trees (Aphis lanigera), he introduced from the United States." Regretting that the burden of his complaint was not unfounded, I resumed my journey.

The blooming time of the early primroses, anemonies, cowslips and violets had passed. But the pretty speedwells, daisies, lady-smocks, white and pale rose-colored squills, the deltoid pink, enchanter's nightshade, crane's bill, succory, milfoil, St. John's wort, crowfoot, chamomile, throat wort, wild thyme, sanicle, pimpernells, campanulas, betony, loosestrife, scorpion grass, ladies' mantle, comfrey, red and white foxglove, and many other beautiful wild flowers bordered the foot-path with their varicolored charms. While along the mossy bank sides, under the hedge screens, were several varieties of graceful ferns, which are better known

by their technical names; such, for instance, as Lastræa filix mas, Polypodium vulgare, Athurium filix fœmina, Asplenium viride, Polystichum angulare, Pteris aquilina, Scolopendrium vulgare, Blechnum spicant and Lastræa dilitata.

Overhanging the old white thorns, hazels, buckthorns, hornbeams, hollies, camp maples, elders, and sloe bushes, were the fragrant honeysuckles, Caprifolium periclymenum, pretty hedge vetches, Vicia cracca, violacea and floribunda alba, Rosa canina, or dog rose, and the nightshade, Solanum Dulcamara, and Lathyrus latifolia; all of which were more lovely than I can describe, and garlanded the way into the pretty village of Sudbury. As all the village and land, for several miles around, belonged to the estate of Lord Vernon, a lineal descendant of the famous gentleman after whom Mount Vernon took its name, everything in "this rural assemblage of order and beauty," seemed like some happy Arcadian scene, full of fresh verdure and unnumbered flowers. And after an absence of so many years, there was but little apparent change to be seen in this delectable spot. The roads and foot-paths were just as firm and smooth as ever. The hedges were neatly clipped, the grassy margins along each side of the road were as well mown and correctly defined as scythe, rake, line and spade could possibly make them. While from within the village school came the old familiar sounds of the commingling voices of the young scholars, exactly as I heard them in days of yore. A little further on stood the old hostelry, once known as the "Vernon Arms." But there a change had come over the scene, without and within. The once conspicuous coat of arms had been removed from the wall, and thus at last it has come to pass, that "all the deceits of the world, the flesh and the devil"—in a liquid form at least—have been finally banished from the place.

But a few steps beyond, and among the trees, is the neat little porter's lodge, and carriage way—which leads up to that fine specimen of Elizabethan architecture—the Vernon mansion, or Sudbury Hall, which overlooks a finely wooded park, well stocked with fallow deer. Naturally, my next steps were bent towards the famous gardens I so well remembered when a boy. As I write, I seem to be reviving scenes endeared by tender remembrances of happy times gone by. And yet, nobody seemed to recollect the kind old soul who so skillfully conducted the horticultural operations there, half a century ago. Alas! dear old Mr. Digwell, of scientific fame; his manly form had long since mingled with the dust, alongside his honored predecessors in the little churchyard, close by the garden wall.

Mr. Harris, the present intelligent and courteous manager, kindly entertained and personally conducted me over the beautiful and extensive grounds, nearly every part of which seemed as familiar as ever.

The broad expanse of lake and lawn lay before me, like a living panorama of surpassing beauty. Across the placid water, were splendid clumps of large double pink and white hawthorn bushes in full bloom; which, with other flowering shrubs, gave a rich coloring to one of the most charming landscapes possible. Following the serpentine walks among banks of rich Rhododendrons, Kalmias, Andromedas, Azaleas, Ericas, Cotoneasters, Arbutus, Menziesias, and similar things, we reached the broad stone terraced steps, which led to the flower-garden and front of the Hall. As we rested beneath the shade of a splendid old yew, which measured upwards of twenty feet in circumference, and where I had often sat when a boy, I thought I had never beheld a lacustrine scene more perfect before. From thence, continuing along the clean swept smooth winding walk, under some magnificent elms, among fine specimens of evergreen shrubs—we passed out through a massive oak door, where over the archway above, was a well executed escutcheon of the Vernon coat of arms, bearing the date A. D., 1600. We were now in the churchyard, where my ancestors on my mother's side had long been sleeping, near the sombre yews. Admonished by the suggestive legend on the sun-dial, that "Time flies," I entered the little church, which was then undergoing repairs. Immediately on finding myself within the antique sanctuary, where many generations of my kindred, long since passed away, had piously joined their voices in prayer and praise, tender emotions filled my heart with sacred remembrances of the past. But in vain did I look for the old family pew, in which I had often listened to the admonition of the grey haired rector, who has been gathered to his fathers, these many years. In the work of renovation, or innovation, the old-fashioned heavy oak pews had been removed, to make way for more modern furniture.

All within seemed changed, save the life-sized alabaster monument of some grim old warrior who there lay, armed, and fully equipped in plate armor—with the visor of his helmet open. By his side, also, lay the sculptured effigy of his spouse, quaintly attired in the peculiar habiliments of the

time, each with their hands supplicatory. The tablet which recorded their valor and virtue, bore the date of 1622.

From the churchyard, to the extensive forcing department, and plant houses, was but a few yards where excellent examples of horticultural skill proved Mr. Harris a proficient horticulturist. But the only plants recognizable to me, were the large orange and lemon trees, which were the first of their kind I saw in fruit, when a boy.

The deep shadows of the old oaks and elms had begun to lengthen, the declining sun was gradually sinking from view, as I turned to take a last fond look of Sudbury hall, feeling assured I should never see it again. Stepping aside from the main road to look at the old homestead, where my mother was born, I perceived it, too, had been partly rebuilt, and was so far changed to a modern structure as to have no semblance to "the old house at home." But the old garden and orchard remained somewhat like what they used to be. And I was informed the trees still bore good crops of fruit. But as I had fully a ten miles' walk before me, I reluctantly felt constrained to bid adieu to Sudbury's pleasant scenes, its gardens and

"Dear meadows that beguiled
My happy days when I was yet a sinless child."

Mount Holly, N. J.

EDITORIAL NOTES.

TO INTELLIGENT CORRESPONDENTS.—*All communications relating to advertisements, subscriptions, or other business, must be addressed to the publisher, 814 Chestnut Street, Philadelphia.*

All referring to the reading matter of the magazine must be mailed to the editor, Germantown, Pa.

No express packages for the editor received unless prepaid; and marked "Paid through to Germantown, Pa."

INTRODUCTION OF AMERICAN PLANTS TO EUROPE.—We learn from a New York correspondent that a German nobleman of considerable influence undertook to get from America a large collection of American ornamental trees, and took all the precautions desired by the Phylloxera convention of Berne to avoid any connection with the Phylloxera. Precisely the same precautions were taken as that confederation desires. But because this country was not a party to the Berne convention, the trees were forbidden entrance to the port of Bremen. They were sent to Hamburg, but there the authorities took and burned them all!

No wonder Mr. Henderson thinks the best way to bring these silly folks to their senses would be to interdict their productions here. Fortunately America is able to get along and produce every thing it needs without any intercourse with the old world. Still for the sake of humanity in general which profits by intercourse, we regret the temptation to another course. Our country is swarming with European insect pests, but we turn to and fight the insects, rather than the people who sent them.

PHYLLOXERA LAW IN HOLLAND.—Holland has entered the convention. When all the world agrees, there will be no use for the Berne convention, and, like the poet's baby when it is dead so early we may wonder why it was ever born. When America and England enter, the Phylloxera may be risked with an oath on the top of it, but the oath is worthless before!

THE HONEY LOCUST.—Boston has and deserves the credit of never forgetting the credit due to those who serve her. But this good trait sometimes leads to curious results. A recent discussion on hedges before the Mass. Hor. Society, is reported at length in one of its papers, and the honey locust is referred to as the Hovey locust. It seemed like a typographical error at first, but as it is repeated through the whole report, it is evident the writer thought the tree has been complimented by Mr. Hovey's name.

COL. M. P. WILDER.—It will be a pleasure to all our readers to know that Col. Wilder still continues in excellent health, notwithstanding his advanced age. He presided at the annual meeting, gave the annual address, and was again elected President of the New England Historic and Genealogical Society on the meeting of January 3d.

BEGONIAS.—If Michel Begon, the patron of Botany of the 17th century, for whom the books tell us Plumier named the Begonia, were alive now, he would be proud of the great number of beautiful plants which bear his name. And the number is still multiplied. Unlike many families of plants which improve rapidly but without much particular distinction, new Begonias as a general thing are striking novelties. Quite a number of new additions are noted in foreign serials.

LIFE: ITS DURATION IN PLANTS.—Plant-life may be considered under three general denominations. Some species are annual, or rather semi-annual, living from spring only to the close of the autumn of the same year; others are biennial, living to the close of the second autumn, but never beyond it; the greater part are perennial, or competent to live for a long series of years. Annuals

include many of the commoner garden-flowers and culinary vegetables, which require to be freshly raised from seed every season; biennials are likewise common in gardens; perennials comprise all those herbaceous plants which form the staple vegetation of a country, withering, to a certain extent, during winter, and even dying down to the roots, but starting afresh with the return of spring; also all trees and shrubs, whether deciduous or evergreen. The perennials exhibit as great diversity in lease of life as the different species of animals. Some decay in as few as four or five years; others, often remarkable for their odoriferous and balsamic qualities, as sage, balm, and lavender, endure for ten or more; next come the larger and robuster kind of shrubs, as rhododendrons and azaleas; then such trees as are of rapid growth, and the substance of which is soft, as the poplar and willow; and lastly, those mighty, slow-growing, solid-wooded pillars of the forest, as the cedar and oak, at whose feet whole nations rise and fall.

How vast are the periods of life allotted to longæval trees may be judged from the following list of ages known to have been reached by patriarchs of the respective kinds named:

	Years		Years
Cercis	800	Walnut	900
Elm	335	Oriental Plane	1000
Ivy	450	Lime	1100
Maple	516	Spruce	1200
Larch	576	Oak	1500
Orange	630	Cedar	2000
Cypress	800	Schubertia	3000
Olive	800	Yew	3200

Four and five thousand years are assigned to Taxodium and Adansonia, and Von Martius describes locust trees in the South American forests which he believes to have begun their quasi-immortality in the days of Homer. Whether or no, it may safely be asserted that the world possesses at this moment living memorials of antiquity at least as old as the most ancient monuments of human art. How grand and solemn is even the thought of a tree coeval with the pyramids of Egypt and the sculptures of Nineveh, yet still putting forth leaves, and inviting the birds to come and "sing among the branches!"—*The Garden.*

INTRODUCTION OF THE PEEN-TO PEACH INTO THE UNITED STATES.—The Florida *Dispatch* referring to the first tree of the Peen-to peach grown in the United States, says:

"The tree was raised from seed obtained from Australia by P. J. Berckmans, of Augusta, Ga.; but the climate of 'Fruitland,' not being favorable to the production of this very early peach, Mr. Berckmans induced Col. Yniestra to plant a few of the trees at 'Belle Vue.' The result was most gratifying and satisfactory. In 1875-6 (we believe) one of the trees first came into bearing, and produced, the second year, twelve hundred peaches. When it was discovered that this fruit was likely to prove so valuable to Florida, Mr. Berckmans immediately put it in propagation, and many buds were also disseminated over the State from the Yniestra tree. Now it is scattered far and wide throughout all parts of Florida, and deservedly ranks as our best and most valuable early peach—having ripened on Escambia Bay, last season, as early as the 14th of April.

"The specimens sent us by Colonel Yniestra were far superior, in size and flavor, to any we have ever seen—one or two specimens measuring 8½ inches in circumference. This suggests very promising possibilities in the future culture of this peach."

PROCEEDINGS OF THE GEORGIA STATE HORTICULTURAL SOCIETY.—Eighth annual meeting at Barnesville. This publication contains, among other valuable chapters, a list of fruits which are adapted to the climate and soil of the state, on the plan of that adopted by the American Pomological Society. There are also a number of essays having a special bearing on the Horticulture of Georgia. We note in one by the late L. E. Berckmans, on Hedges, that support is given to the idea of running a few strands of barbed wire on temporary posts for Osage orange plants to run through eventually, and we have no doubt this idea will become universal. We cannot second the recommendation to have double rows of Osage orange plants one foot apart, and set zig-zag or alternately. Osage orange like other plants are often benefited by keeping down weeds among them for a year or two, and hoeing cannot be done well in a double row. It is much better to have but a single row six inches apart, than two of twelve inches. Plants are cheap, and for fear a few may fail here and there, we should plant a single row, four inches apart.

A NEW DESK TOOL.—Did any one ever stop to consider how much the world owes to those who invent little things? What is so nice as a ruler on one's desk? But the old round ruler was always rolling when it should be at rest. Then came the round roller with an octagonal outline, which would rest—sometimes—on a sloping surface, but most penmen have had to learn to make lines as straight as possible without waiting to find the ruler. Thanks to Lord & Thomas, advertising agents of Chicago, we have now on our table a ruler which will not roll in any unruly manner, and it is combined with a paper weight, check cutter, and an inch measure. Whatever others may think, it is at least very welcome to our desk.

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

CHRYSANTHEMUMS AT PHILADELPHIA AND NEW YORK.

BY JOHN THORPE.

It is a pleasure to me to be able to furnish you with some particulars about the chrysanthemums as shown in New York the past season; also to supplement the remarks of Mr. Wooding, relating to growing and exhibiting the single specimen plant grown by me, and exhibited at the New York Horticultural Show. It was six feet in diameter (not circumference, as in your note), grown in a pot the whole season; but the plant had been grown the year previous in a seven-inch pot and all the shoots, eleven in number, allowed to grow; other plants under the same treatment and conditions were over five feet in diameter. These were fine effective plants, but I had a great many other plants that gave me more professional pleasure and credit than these—such as were grown from cuttings of January to March, notably a plant of "Temple of Solomon" which was not rooted before quite the end of March, and when exhibited was nearly four feet in diameter, a solid mass of rich golden yellow, and sold for $14.

The popularity the chrysanthemum has obtained is of the most universal character, which undoubtedly will grow steadily and become permanent, so much so as to warrant my predicting, it will not be long ere we see every city, large and small, forming societies for the exhibiting of it all over the Union. There is no plant more showy, lasting, or beautiful; besides, it lengthens out the season fully six weeks, is thoroughly republican and cheaply obtained.

Returning to Mr. Wooding's criticism and your note respecting the manner of awarding prizes. I am sure you will admit there are "two sides to every question," and I have no doubt the judges at Philadelphia were aware of that fact also. Now, did the judges make any mistake? Did the society make any mistake? These are questions not easily answered I admit, yet, we must look on all sides and consider all points. If there were no restrictions in the schedule as to whether plants shall be grown in pots or not and the contributor to whom was awarded the first prize had plants the largest, had the best foliage, the most and equally as good flowers, he was entitled to the prize, from the fact of there being no restriction, and from common usage the chrysanthemum is so much subjected to being planted out in summer, dug up and potted as to make it more eligible than if some other class of plants was the point in question, presuming these same plants were dug at least a month or five weeks previous. How long a time is necessary to constitute a plant pot-grown? It may be said the society ought to have provided for these issues, but as they did not, what are you going to do about it? It is not only the Pennsylvania Horticultural Society that should do this or that, if they wish to encourage the best skill in horticulture, but it is every society in the country. There is not a schedule printed but what is more or less ambiguous—when it is quite as easy to make things plain and intelligible; this is much to be regretted. I always maintain there are instructions due alike to exhibitors and to judges—a few rules so worded as to be easily understood of what is considered a nearly perfect specimen would not only help those immediately interested, but it would educate the people, prevent bickerings and insure more interest. Returning to the chrysanthemums grown in pots, I am always on the side of skill and ability and for all that belongs to it. To grow chrysanthemums successfully in pots—to be well furnished with foliage, perfect flowers and truly colored—is a task of which "eternal vigilance is the price." It may appear that there is not much skill required but there is a good deal of attention, so much so that the man who grows them is neither sloth nor sluggard.

These are the points for the consideration of horticultural societies, and where time is money, there are few plants that cost more to grow than the chrysanthemum—there are few plants that will repay more for being well treated. Classes should be made for single plants growing in pots, the stems to be one inch or more clear before branching; for these the prizes should be larger than for the classes where plants may be grown in the open and lifted; even in this case plants should be from single cuttings. Another class for a given number of plants, say twenty-five, grouped for effect, could be encouraged so as to admit all growers. I shall be pleased to assist in the framing of a prize list, if at any time I may be called upon. The trouble of exhibitors and perplexity

of judges—let it be in either flowers, fruit or vegetables—can be easily overcome, by an intelligible and easily understood schedule.

Queens, N. Y.

HORTICULTURAL SOCIETIES.

BY N. ROBERTSON.

There has been considerable discussion in England over horticultural societies, their management, and the judgment given by the judges at them. A few remarks about our own on this side of the ocean may, I hope, not be out of place, as there are evils existing which a few hints may remove. Having had some experience as secretary to one for several years, I made it a particular point to watch for and enquire into any grievances, but I am glad to say, in no case could I find anything but errors of judgment, to which all men are liable. One of the first principles of a society should be, to see that its rules are enforced to the very letter, though once in a while hardship may seem to result from the rigid enforcement. There are days set apart on which all entries must be made, and an hour in which all articles must be in position. But directors as well as others are often found very negligent on those points. I have known where parties would come early with their things, put them in position, look around and see what others had brought, and if they lived near, go home and bring other things which they thought would excel. The entries having been once made, after seeing what distant exhibitors have brought, it is quite a common thing for parties to make many more entries than they intend to exhibit, so as to frighten others away. Sometimes articles may not turn out as well as they would like when they get them together; but even this entails considerable useless work on the secretary. Where cut flowers or devices are concerned, the time in which this work can be got ready is always limited by the perishable nature of the material. Men may enter in good faith but find the time too short to be able to complete the work. But extra time should not be allowed. Enforcing rules should never be looked at as arbitrary, but as fair justice to all concerned. There are parties that will catch at anything of this kind, and it is always best to give no chance. I have found Directors very remiss in their duty on these two points. Rule makers should be very careful not to be rule breakers.

Yet there are cases where this would be extremely arbitrary if carried to the letter; it is the spirit only which should be rigidly observed. I will relate one in point, more to show the spirit that should reign among all exhibitors, than anything else. It was the case of one of the largest and most successful exhibitors, having to travel by a train which was behind time so much that he got to the place of exhibition just as the doors were closing. The parties with whom he was to compete, in full knowledge that he almost always beat, yet aided him to get his articles in, and placed in their position, in the most kind and cheerful manner. A director could do no less than sanction such generosity.

Judges and their judgment often form a very great part of contention among exhibitors. In some lines it requires the utmost care to be able to decide, and then to show the justice of their decision when articles come close to one another. I will here say that cases have been known where plants were shown at three different exhibitions against the same material without any change being made in them, yet the judgment was changed every time, different views having been taken by the judges at all of them. But judges are very injudiciously chosen often; they should always be men with thorough practical knowledge, and if possible, without knowledge of source of the articles to be shown. Not that I would not entrust anything I had in their hands, but the knowledge of the article and the grower, unconsciously to the party, influence the decision or cause men to suspect so. Cases have been where the most just judgment has given offense to the parties concerned. I would in all cases where it is possible get strange judges. No doubt many errors arise from judges being incapable; but there is always a rule, or should be, in every schedule, giving dissatisfied parties a chance to have such looked into. A meeting of directors should always be held on some of the days of the exhibition, to take up any complaints, and go over again whilst the articles are on exhibition. We should not consider it a matter of ingratitude to require this.

Many a society has been broken up through a rigid belief in the infallibility of a judge. Horticulturists do not go in unanimously as they should for their own good. Advertise their meetings, and send out circulars to all you like, and how many will attend a preliminary meeting? Ask them the reason why? and they will tell you that those that are now in office will have all cut and dried before they go to the meeting, and there is "no use for me to go." Such remarks are generally unjust, for I have been at many such meet-

ings, and never heard any proposal made but was listened to with the greatest courtesy, no matter how absurd or from what source it came. Men must not be so selfish as to expect that their opinion shall always be approved. If parties think of the existence of compacts it is their duty, instead of staying away, to come out and break them down by their presence and their votes. But they must not forget that all parties have a like right, and others have as much right as they to propose and aid in electing who they think fit for positions. Persons adapted for this purpose should be such as have some knowledge of horticulture, or at least take an interest in it. It is often done for the sake of means for their support, and even this idea comes very useful in most societies.

There is another class of persons that do attend these meetings, sit and hear all that passes, never opening a mouth until outside the door after the meeting, and then talking freely enough about what should have been done. Perhaps some things were done wrong and if the word had been said, all would have been right. I would not wish to be understood as meaning that all societies endure this sort of thing, but I am convinced that there is far too much of this spirit existing. It would be well that all people interested in horticulture do all in their power to break down any barrier which may be detrimental, and go in with a spirit of kindness and forbearance with one another's faults. Kind, reasonable words have always the most force to overcome and remove matters in discord with this or any other matter. *Supt. Gov't Grounds, Ottawa, Can.*

CHRYSANTHEMUMS.

BY W. FALCONER.

Apropos of the remarks on these, page 8: Walcott, Woods, Atkinson, and other champion exhibitors use young plants, that is, those under one year old, and the above named at any rate, plants that had been planted out during the summer months and lifted and potted in September. John Thorpe tells me he thinks he gets better flowers from all-summer-long pot-grown plants. They would not dare use two or more years old plants, because if they should, defeat would be inevitable. We do not get as fine flowers from old plants as we do from young ones; for example, see our Boston and New York prize groups. The chrysanthemum is a hardy perennial plant at Philadelphia; then why on earth require a rule that the plants should be all along pot-grown? Besides, being a hardy perennial, by what rule or law shall anyone require that the plants when exhibited shall be under one year old?

Bouvardias and Cape heaths are tender, hence regarded as true pot plants; but what sensible rule in horticulture would deny us the privilege of planting them out in the open garden in summer and lifting and potting them in fall, when practical experience teaches us that such is the most successful method of cultivating them? And if we are thus justified in planting out tender plants, how much more are we justified in growing our hardy, herbaceous, perennial plants in our outdoor gardens? It is perfectly inconsistent to suppose we could exhibit specimen plants of chrysanthemums any more than we could of other hardy plants, as lilies, funkias, larkspurs and pentstemons, otherwise than in pots or the like; and just as inconsistent to require that such hardy plants for exhibition purposes should have been, from their youth up, continuously pot-grown.

The claim of chrysanthemums for pot-culture, in whole or part, consists in their late-blooming nature and our desire to enjoy their gorgeous profusion in the greatest perfection and for the longest possible time. Did they blossom at the same time as the coneflowers and clematis we would no more think of growing them in pots than we would pæonias or bellflowers.

EDITORIAL NOTES.

FERTILIZING MOSS.—E. A. Caswell, New York City, writes Jan. 9th: "Answering your enquiry concerning the competitive trial between moss-grown and earth plants, permit me to say that two premiums were offered by the N. Y. Horticultural Society and were competed for at their exhibition, June 19th, 1883. There were altogether some thirty plants shown. Twelve plants shown by Mr. Barr's gardener and cultivated in Dumesnil moss took the first ($15.00) prize, and twelve others exhibited by Chas. J. Power of S. Framingham took the second prize ($10.00), had been cultivated in the same material. The specimens were rich in color, full in foliage, and pronounced by the judges to be very fine, and superior to the similar plants grown in earth and moss exhibited at the same time, as was shown by the awards. Mr. Peter Henderson was specially invited to send an exhibit of his bone-dust-grown plants in competition, but none were shown. The exhibit was four Abutilon (Snow-storm), four Geranium Double (Gen. Grant), four Coleus (Verschaffelti).

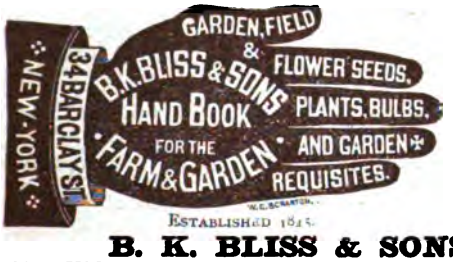
Pea, Bliss' Abundance.—90 pods counted on a single plant. Very productive, 15 to 18 inches high, requires no brushing. Second early. Excellent quality. 25 cts. per packet; 5 packets, $1.00. Postpaid.

Pea, Bliss' Everbearing.—A perpetual bearer, yielding a full crop until frost. An excellent late variety, 18 to 24 inches high. Requires no brushing. Peas of large size, many 1¼ inches in circumference. Immensely productive. 25 cts. per packet; 5 packets, $1.00. Postpaid.

Pea, Bliss' American Wonder.—The best and earliest variety grown. Very dwarf, excellent flavor. 20 cts. per packet; 40 cts. per pint; 75 cts. per quart. Postpaid.

N. B.—These three varieties will give you Peas throughout the entire season until frost.

Cauliflower, Sea Foam.—The best early variety, always sure to head. 50 cts. per packet.


GARDEN, FIELD & FLOWER SEEDS.
B.K. BLISS & SONS' PLANTS, BULBS,
HAND BOOK AND GARDEN
FOR THE FARM & GARDEN REQUISITES.
34 BARCLAY ST. NEW-YORK
ESTABLISHED 1845.

Watermelon, American Champion.—The best eating and best shipping Melon grown. More productive than any other sort. 25 cts. per packet; 5 packets for $1.00.

$50.00 in premiums offered for 3 largest Melons grown. For particulars, see *Novelty List.*

Rhubarb, Early Paragon.—A new English variety. The earliest and most productive variety. Never runs to seed. Roots only for sale. Price, 75 cts. each. Postpaid.

Pansy, Bliss' Perfection.—The choicest strain yet produced. Our *Gardeners' Hand Book* for 1884 contains a beautifully colored plate of this magnificent variety. 50 cts. per packet of 50 seeds.

Carnations, Shaksperean.—The finest ever introduced. Continue in flower the whole season. 50 cts. per packet. Plants, 50 cts. each. $4.00 for the set of 9 varieties.

Wild Garden Seeds.—A mixture of 100 or more varieties of Flower Seeds. A packet will plant a square rod of ground. 25 cts. per packet; 5 packets, $1.00.

Tigridia, New White.—One of the most beautiful of Summer Flowering Bulbs. 25 cts per bulb.

Remit by Postal Note, Money Order, Registered Letter or Draft.

For other Novelties see **Bliss' Illustrated Novelty List,** which describes the newest and choicest Flowers, Vegetables, Fruits, Cereals, Plants, etc. Mailed *free* on application.

Bliss' Gardeners' Hand-Book for 1884, containing 150 pages, 300 illustrations, and two beautiful colored plates. Tells **What, When** and **How** to plant, and is full of information, invaluable to all interested in Gardening. Mailed for 6 cents to cover postage.

B. K. BLISS & SONS, 34 Barclay Street, New York.

The GARDENERS' MONTHLY

AND HORTICULTURIST

FOR 1883-4.

SUBSCRIBERS

are requested to send at least one **NEW** name with their own, if possible. For this attention, we will furnish **THE TWO** at $3.00 for the year.

TWO NEW SUBSCRIPTIONS at $3.00. FIVE at $7.00.

Remit by MONEY ORDER or REGISTERED LETTER; or if you send DRAFT or CHECK, make payable on MIDDLE STATES, NEW ENGLAND or MARYLAND. On BANKS west and south of those points add twenty-five cents to each CHECK, to refund cost charged us for collection. Currency is at risk of sender.

RESPONSIBLE AGENTS

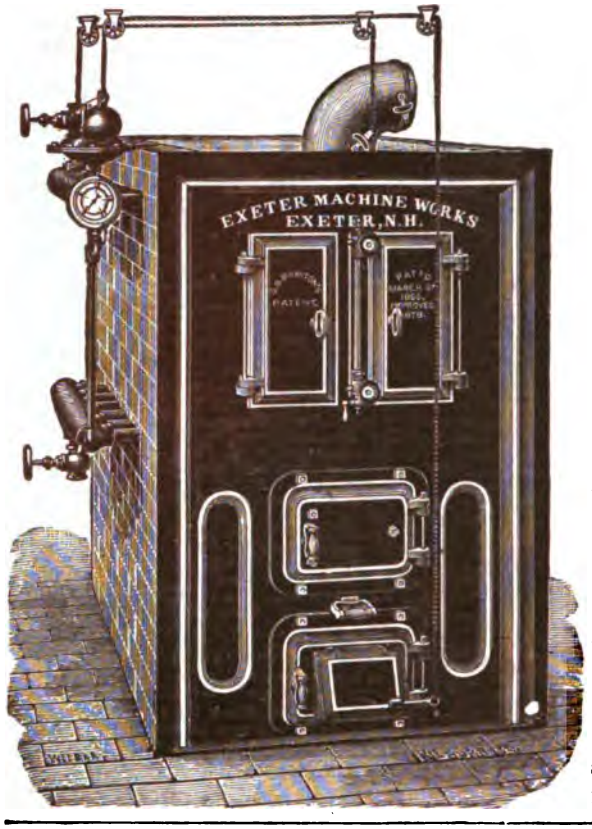
Will be allowed a liberal commission, retainable out of subscriptions secured and forwarded. Send for net rates. Sample copy 18 cts., postage stamps. We do not hold ourselves responsible for the acts of *Bogus Agents.*

SUBSCRIBERS MUST CHOOSE THEIR AGENTS AT THEIR OWN RISK.

Any Subscriber who has already renewed his subscription and paid $2.00 may order a new subscriber at the rate of $3.00 the two, by remitting the additional $1.00 to balance, and oblige, with thanks for past favors and efforts.

All subscribers, at whatever rate, are invited to take advantage of our list of **CLUB PAPERS.** See advertisement.

CHARLES H. MAROT, Publisher,
814 Chestnut Street, Philadelphia.



THE EXETER HEATING APPARATUS.

GREENHOUSE HEATING A SPECIALTY.

Our systems comprise Hot Water Heating, Steam Heating, and the combination of Steam and Water.

OVER 1000 BOILERS IN USE.

Exeter Machine Works

19 Federal St., Boston, and Exeter, N. H.

We solicit correspondence from any party contemplating a change in their apparatus. tf12

KNABE

PIANOFORTES.

UNEQUALLED IN

Tone, Touch, Workmanship and Durability.

WILLIAM KNABE & CO.

Nos. 204 and 206 West Baltimore Street, Baltimore. No. 112 Fifth Avenue, N. Y. d3

THE SCHOOL GARDEN

BY DR. SCHWAB, DIRECTOR OF THE VIENNA GYMNASIUM, ETC.

FROM THE GERMAN BY MRS. HORACE MANN.

Advocating education by labor as well as by study, not as a task but as a delight. Adapting the kindergarten principle to older children. In France and Sweden it is no longer an experiment. School gardens in city and town are destined to be a great educational force in America. This book, full of spirit and enthusiasm, will materially hasten the day. Price by mail, 50 cts. each. By express, 5 copies for $2.00, 12 copies for $4.00. Sent on receipt of price.

Address, CHAS. H. MAROT, 814 Chestnut Street, Phila.

The Botanist's Pocket Book.

2nd Edition, cloth limp, pp. 208. By W. B. Hayward. Containing the Botanical Name, Common Name, Soil and Situation, Growth and Time of Flowering of every Plant, arranged under its own Order. Price $1.70. Mailed, postage free.

CHAS. H. MAROT, 814 Chestnut St., Phila.

HOW TO READ

AND HINTS IN CHOOSING THE BEST BOOKS,

With a classified list of work of Biography, History, Criticism, Fine Arts, Fiction, Poetry, Religion, Science, Language, etc. By Amelie V Petit. Pp. 220. 12mo, cloth. Price, $1.00. By mail, post-paid on receipt of price. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

GREENHOUSES HEATED

BY LOW PRESSURE STEAM.

mh12 SATISFACTORY PERFORMANCE OF APPARATUS GUARANTEED. ADDRESS,

E. H. BOCHMAN, - - - - Box 373, Pittsburgh, Pa.

KISSENA NURSERIES

TREES AND SHRUBS—OLD, NEW, RARE AND HARDY.

PARSONS & SONS CO., Limited,

Descriptive Catalogue Free. f1 FLUSHING, L. I.

MAR 3 1884

Harvard College Library

THE GARDENERS' MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

Vol. XXVI. No. 303.
(Combined Magazines, Thirty-ninth Year.)
MARCH, 1884.
PUBLISHED BY CHARLES H. MAROT,
814 Chestnut Street, Philadelphia.

[Entered at the Post Office, at Philadelpia, Pa., as second-class matter.]

THE GARDENERS' MONTHLY

AND HORTICULTURIST.

It is published on the first of every month at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS relating to subscription or advertising should be addressed.

☞ Communications, Copy and Packages for the Editor should be addressed to THOMAS MEEHAN, GERMANTOWN, PHILADELPHIA.

SUBSCRIPTION PRICE, POSTAGE PAID, $2.00.

ADVERTISING RATES IN THE GARDENERS' MONTHLY:

	⅛ col. or 12 lines.	¼ col. or 16 lines.	⅓ col. or 24 lines.	½ col. or 32 lines.	⅔ col. or 48 lines.	1 col. or 96 lines.	1 page, or 192 lines.
One Insertion	$3.00	$4.00	$5.50	$7.00	$10.00	$18.00	$35.00
Two times, each	2.90	3.90	5.00	6.80	9.00	17.00	33.00
Three " "	2.80	3.75	4.75	6.55	8.50	15.50	30.00
Four " "	2.70	3.60	4.50	6.30	8.10	14.40	27.00
Five " "	2.55	3.40	4.25	5.95	7.65	13.60	25.50
Six " "	2.35	3.15	3.93	5.50	7.05	12.45	23.50
Seven " "	2.20	2.95	3.65	5.15	6.60	11.75	22.00
Eight " "	2.05	2.75	3.45	4.80	6.15	10.95	20.50
Nine " "	1.90	2.45	3.20	4.45	5.70	10.15	18.85
Ten " "	1.75	2.30	2.85	4.05	5.25	9.30	17.45
Eleven " "	1.60	2.15	2.65	3.75	4.80	8.55	16.15
Twelve " "	1.50	2.00	2.50	3.50	4.50	8.00	15.00

Twelve lines nonpareil is ⅛ col. A less space than ⅛ col. will be furnished at same rate per line as ⅛ col.
For space on FLY-LEAF and LAST COVER PAGE, also FIRST PAGE advertisements facing last reading page, 20 per cent. advance on above rates will be charged.

CHAS. H. MAROT, Publisher, 814 Chestnut St., Philadelphia.

CONTENTS OF THE MARCH NUMBER.

SEASONABLE HINTS:

Flower Garden and Pleasure Ground 65-66
Fruit and Vegetable Gardening 76-77

COMMUNICATIONS:

Some of the Newer Chrysanthemums 66
Experimental Notes 67
Cemetery Flowers 68
Garden Beauty 68
Orchids in February 70
Cementing Plant Benches 72
Dracæna Goldieana in Flower 72
Budding Roses for Winter Blooming 73
Vriesia Speciosa 73
Mushrooms 77
Water Cresses 79
Growing the Japan Persimmon in Tubs 79
Note on an Experiment with Native Potatoes 79
Celery—White Plume 80
Chestnut on Limestone 82
Chestnut Trees in Limestone Soils 82
Chestnut and Beech on Limestone 82
Forestry in Scotland 83
About the Arizona Potatoes 84
Pear Blight and Peach Yellows Studied in a Remedial Way upon a Bacterial Basis 85
Shore Ice as a Geological Agent 86
Some Persian Fruits 90
Exaggerating New Things 90
The Chrysanthemums at the Pennsylvania Horticultural Society Exhibition 94
Chrysanthemum Shows in Boston 94

EDITORIAL NOTES:

The Umbrella Pine—The Maple Borer—Growing Lilies 69
Excelsior Fumigator—Bouvardia, Thomas Meehan—Orchid Blocks and Pans—Rose, Sunset—Disease in Winter Blooming Roses 73-74
Lengthy and Harsh Names for Fruits—Wilson Junior Blackberry—The Cuthbert Raspberry—Grape Products in California—Harvey Davis Strawberry—Lady Ingold Peach—Peaches in Eastern Pennsylvania—Two Reliable Apples—The Salome Apple—The Quince—Fine Hothouse Grapes—Grapes in the West—A Large Pea—Self-blanching Celery—White Plume Celery 80-81
The Value of Timber Planting—The Catalpa in Dakota—Forest Destruction 84
The Potato Fungus and its Allies—Wilbrandia drastica—Migrations of Birds—Apparent Waste in Nature—Favorable Conditions for the Migration of Weeds—Change of Sex in Strawberry Plants 86-87
Editorial Letter from Harrisburg—Census Reports—Dr. Geo. Engelmann—The English Flower Garden 91-94
An International Exhibition of Fruits—Designs and Flowering Plants—Massachusetts Horticultural Society—Pennsylvania State Horticultural Society 95-96

NEW OR RARE PLANTS:

White Judas Tree—Rheum Collinianum—Pyrus Maulei—Violet, New York—Japan Judas 69-70

SCRAPS AND QUERIES:

New Carnation—Growing Violets—Names of Plants—Propagation of Ferns—Treatment of Chinese Hibiscus—Glazing Greenhouses 74-76
Peach Trees in Sod—The Club-root in Cabbage and Turnips—The Codling Moth in Nevada 81
Honeysuckle Apple—Varieties of Mahogany—The Season in England—Poison Kalmia—Artemisia Stelleriana—The Snow Plant of the Sierras—The White Spruce in Colorado—Freezing of Sap in Trees 87-89
First Appearance of the Yellows in the Peach 94
Mr. Wilder on Nomenclature—In Reply to John Wooding's Letter, headed "Skilful Culture of the Chrysanthemum" 96

FLOWER GARDEN & PLEASURE GROUND 65-76
GREENHOUSE AND HOUSE GARDENING 70-76
FRUIT AND VEGETABLE GARDENING 76-81
FORESTRY 82-84
NATURAL HISTORY AND SCIENCE 84-89
LITERATURE, TRAVELS & PERSONAL NOTES 90-94
HORTICULTURAL SOCIETIES 94-96

MAR 3 1884

THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

VOLUME XXVI. MARCH, 1884. NUMBER 303.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

In preparing hints for the month, we have found more difficulty about March than about any other month in the year. We never forget that our readers extend from the St. Lawrence to the Gulf of Mexico, and that the same number which is delighting some one in Lower California, is being as eagerly scanned by some one in Massachusetts or Maine. Hence we have never attempted a monthly calendar of operations, but endeavor to suggest such general thoughts as may be of service about the time the magazine reaches any one in any part of the country. But the period which runs between March and April is just the period when we find the most extremes. It is still ice-bound in many places while in others the Spring flowers are nearly gone. Still, the gardening preparations are not over anywhere, even where begun for the season, and therefore there is much which may be said that may benefit all.

First, this is the season above all others when folks think, if ever they do think, that a little gardening is a very good thing. There is not a person doing business in a town or large city, but wishes he was in the country among the surging life of nature, and numbers do go out wherever some place can be had within a short railroad ride from their business places. Those who cannot, still work up their little yards, and all do something with the pleasures gardening offers them. The misfortune generally is that entirely too much is undertaken on the spur of the moment, and the constant labor of a large undertaking soon takes away the pleasure with which it began. We advise, therefore, every one who has the spring fever on gardening, not to attempt too much. If he thinks he can certainly care for and enjoy a half an acre of garden, let him make one of but a quarter; and if he has means enough to keep a professional gardener, and is tempted to have twenty or more acres and half-a-dozen men, let him make one of about ten acres, and half the number to care for the garden, and even then, ten to one, he will in the long run find that he has all he cares to enjoy. Lawns, flower beds, walks, garden ornamentation of every kind, should be reduced to a minimum, but then properly cared for and sustained. It should not be how large a garden? but how pretty a garden? and it should be a main idea with those who have to employ assistance in gardening, to ask themselves not how much work can we put on those we employ? but how can we encourage them to maintain every thing in first-class order. We have often seen instances where one man is employed to look after a small garden, and who

is expected to look after scores of things which all take time, and the garden looks bad, till the family begin to wonder "however John employs his time?" Of course there is often reason for this wonder, for there are shiftless employees as well as thoughtless employers; but the great lesson we wish to inculcate is, that much more pleasure will come from a small garden well cared for, than from the largest where everything is ill done, and behind time.

Just what little hobby in gardening to ride, will of course depend on inclination and locality. If one has a shady nook, a small rockery and fern garden will give great pleasure if the situation be damp; for even ferns that will live on exposed rocks usually curl up in a dry time. For a sunny hot spot, cactuses and succulents give great satisfaction—and this, by the way, is a branch of gardening that has not been well worked up with us. These plants take very little care, and can usually be easily preserved during winter. Those who are fond of flowers for their own lovely sakes will have a rich open spot, perhaps bordered by old-fashioned hardy herbaceous perennials and showy annuals, and these often give great satisfaction. In travelling in the most out-of-the-way places we often find specimens of this sort of gardening, and though the flowers come up without any order or system, it is wonderful what pleasure it gives. The writer has a spot in his mind he came across when journeying over the Rocky Mountains by stage, last summer, in the break between the two completed ends of the Northern Pacific. Every fifteen miles stations were established to change horses, the stage keeping on the run night and day, except half an hour for meals. The place in question was a station for dinner. We walked up to the cabin through a large yard. which was a sheet of flowers, though, as the good lady expressed it, they were put in "promiskus-like." Petunias, Canterbury Bells, Drummond Phlox, Marigolds, and scores of such common things—yet we can assure our lady readers that it did look too pretty for anything in that lonely and wild place. And there was no rain there. The plants had to live by watering from a limpid stream which came from the melting snow on a mountain at hand. But even flowers need care, and where this may be burdensome, a few choice shrubs or trees, selected for their rarity or beauty, and planted with the intention of being watched and cared for, will give no end of pleasure.

Even those who have large gardens, or a variety of things to occupy them, will find much more pleasure than they have any idea of, in taking one or two things of no great extent under their special protection and manipulation, in order to study out and perfect them. And now is just about the time to decide what these pets shall be.

COMMUNICATIONS.

SOME OF THE NEWER CHRYSANTHEMUMS.

BY JOHN THORPE.

During the last two years upwards of a hundred and fifty new varieties have passed under my observation. The following are among the very best and worthy of a place in every collection—in fact, the majority are absolutely indispensable—beginning with the Japanese kinds: Admiration, a lovely shade of rose pink; Comte de Germiny, rich orange brown, very broad petals, reverse silvery bronze; Fabias de Maderanaz, immense size, pure white and lemon yellow, much curled; Francois Delaux, very rich, deep chestnut crimson; Earl of Beaconsfield, a new shade of crimson, with yellow markings; J. Delaux, richest maroon of the largest size, superb; Lady Selbourne, flowers of the snowiest white, with broad petals; L'or du Rhin, rich bronzy gold, fine and distinct; Mdlle. Lacroix, a lovely white, much twisted, with lemon center; M. Desbrieux, brassy amber, in dense heads; M. Mcnsillac, the nearest approach to scarlet, fine flower; Rubra striata, creamy yellow, lined with salmon red, grand; Striata perfecta, very large, blush with rosy pink markings.

Chinese and incurved varieties: Duchess of Connaught, silvery rose, incurved, beautiful; Crimson King, intense crimson, reflexed, the best of all dark ones; L'Africaine, orange, yellow and crimson; Mabel Ward, silvery primrose, with perfectly incurved flowers; Madam Croizette, silvery lavender and blush, very large; Royal Purple, rich amaranth; Sir B. Seymour, rich orange brown and silvery bronze; Lord Wolesley, a magnificent flower of a peculiar bronzy red shade.

Pompons: Amaranthina, amaranth; Curiosite, scarlet and gold; La Vierge, flowers of the purest white; Ringleader, silver lavender, tubular florets; Orange Beauty, a gem, pure golden orange.

The seedlings certificated by the New York Horticultural Society in November last, of my raising, are likely to come to the front among the best, and the interest awakened by the fine single forms is remarkable. *Queens, N. Y.*

EXPERIMENTAL NOTES.

BY MRS. R. B. EDSON.

The advent of the spring catalogues has jogged my memory. We are on the eve of another battle and I have never reported the last engagement. And, although it may look suspiciously like a last-year's bird's-nest, it is barely possible there are still "eggs in last year's nest."

I haven't nearly as many grievances to report as usual. Having learned wisdom and caution, I didn't try to compete with Baltimore on Caladiums, or California on big trees, under the alluring name of "dwarf pink salvias." I am, consequently, in a happier frame of mind than when I last poured my sorrows into the sympathetic bosom of the MONTHLY, and got properly rebuked for my impertinence in venturing to have an opinion concerning certain "magnificent" things. Will the Editor be so gracious as to look the other way while I reach across the distance and touch palms with "Virginian?" I am ready to bear my share of the drubbing administered to that luckless individual, but am not ready to take back a word. So long as the good Editor did not wield the axe, I'm not a bit scared. "Correspondents" don't amount to much, —aren't I one?

The drought of the past summer, coupled with the damage caused by the severity of the preceding winter, made garden-making rather up-hill work. When one loses, as did the writer, such supposed-to-be-reliable things as Lilium candidum, L. longiflorum, Yucca filamentosa, Hollyhocks, Aquilegia chrysantha, Adlumia, and even Lobelia cardinalis —our well known cardinal flower—it very seriously affects the foundation of things. The only satisfactory thing about it was that Galtonia (Hyacinthus) also went by the board. I was reading an advertisement, not long since, of that delectable plant, in which the blossoms were represented as being "exquisitely fragrant," &c.; and "specially suitable for bouquets." Any one who has ever grown it, knows how very wide of the truth are both statements. There is, however, a Cape bulb which is not at all common, and though not entitled to a very long list of adjectives in its description, it is worth, for beauty and usefulness both, ten times as much as Galtonia can ever be; save, possibly, as a large clump in a shrubbery border. The bulb alluded to is Montbretia Pottsi. The foliage resembles the Gladiolus, only being much more dwarf in every way, and the flowers are borne on long, graceful spikes of from fifteen to twenty blooms. They are about an inch and a quarter long, lily-shaped, and of a peculiar waxy appearance. In color they are of a rich red outside, showing a tinting of deep yellow in the throat. They are very pretty and graceful for bouquets, but are not fragrant. The bulbs increase with the most astonishing rapidity, and each a strong bulb. They are about the size of a walnut, throw up three or more spikes in succession, the season of bloom continuing about two months.

Among new annuals, the double Gaillardia is the most satisfactory of anything I have seen for years. It is so entirely different from the type, it hardly seems possible it could have been evolved from it. It was new in my locality last year, and the subject of much inquiry and admiration. Its habit of growth is also good, which is, to my mind, a great point in favor of any plant.

I tried the Polyantha roses, three sorts of them, and admired them greatly. Mignonette is the best grower, and the clusters of bloom are larger, though the individual flowers are smaller. But they are so exquisitely beautiful, the soft blush tipped at the edges with rarest crimson, and they last long in beauty, clusters of a dozen and upwards keeping in full beauty for more than two weeks. Mme. Montravel has larger flowers, but their pearly whiteness is marred before the end of a week. Cecile Brunner is of a lovely salmon pink at opening, but fades quickly, and had not, with me, nearly as large panicles of bloom. They are a novel and interesting group of roses, and well deserving of attention. I note with pleasure the introduction of a new yellow sort, which must be a great acquisition.

I am growing more and more pleased each year with the single Dahlias. Being grown with equal facility from seeds or tubers, and coming into flower as early as most annuals (July 1st), I think they are destined to a great and growing popularity. From their profusion of bloom they are one of the most showy ornaments of the garden for three months or more. For bouquets, I know of hardly any other flower, after June, that is so striking and pretty.

Among the noticeable things of recent introduction, the small single sunflower, "Oscar Wilde," is worthy of mention. I had one plant that deserved to have its biography embalmed among other good things in the pages of the MONTHLY. Although said to be more dwarf in growth than the old sorts, this particular plant grew to be over eight feet in height, and so regularly and finely branched that it was about the same in breadth at the top. The foliage was small and the flowers ranged in diameter from

two and a half to four inches, probably three inches being the average. It began flowering about the middle of July, and at no time was there less than twenty-five, and oftener twice that number of blooms on it at once. A sudden wind-squall broke it down early in September, and it had then over twenty buds and blossoms, with every promise of as many more. It is, perhaps, unnecessary for me to say that it had liberal treatment, and was well supplied with water. To those who have never grown it, I desire to recommend for any situation, where a vigorous climber is required, Ipomœa grandiflora, or noctophyton—I am not sure which is its proper name. Its luxuriant habit of growth is a perpetual surprise and delight, and when to its glossy foliage is added its great, starry, white flowers, it is indeed superb.

Among the newer Tea roses I am greatly pleased with Mad. Joseph Schwartz. It is of a vigorous and healthy habit of growth; the flower is of good size and of a perfect cupped form, and is exceedingly fragrant. The color is a very delicate blush, the edges of the petals stained and tipped with carmine. It is one of the loveliest of its class.

I notice in the report of the discussion on roses, at the weekly meeting of the Massachusetts Horticultural Society of December 29th, 1883, that there was a general agreement as to the need of replanting rose-beds as often as once in two or three years, either by setting out new plants or by a complete renovation of the beds, so that they have an entirely fresh soil. It was the general testimony of all these rose experts that it was very little use to try to compromise the matter by even the most liberal enriching of the old soil.

Now, I submit that this is a terribly disheartening piece of intelligence. What with aphis and thrips, and rose-bugs and red spiders, and worms of high and low degree, and every degree of voracity, the average amateur doesn't get his rose-bed fairly established in two years. If, then, they have all to be "roused" out of bed and put into cold sheets, or somebody else put into their warm place, one might as well give up the battle and done with it.

Do the readers of the MONTHLY grow Salvia and Nierembergia from cuttings, I wonder? I have done so in previous seasons, but last season tried seeds. I shall never grow them from cuttings again. Plants from seeds of both the above, sown the middle of March, began blooming by the tenth of July. They were of much more vigorous growth and better form. I took care to train them in the way they should go, and had three times as many flowers as any I ever grew from cuttings.

A word about Chrysanthemums, and I am done. I caught the epidemic bearing that name, now going the rounds, and had a severe attack last autumn. I like it, too, and hope to have it some more. If any reader of this has not seen the "new departure" in this old-time flower, he has missed a rich treat, and should repair his mistake by investing in a choice dozen. But, there is a "fly in the ointment," and in this case it is a black fly—yea, flies, millions of them! I syringed with tobacco water outside and dusted with snuff indoors. But this was only a temporary relief. A score came to each one's funeral. Can anyone give me a better method of treatment? Because I must have the Chrysanthemums.

CEMETERY FLOWERS.

BY A. G. LEWIS.

For a few years I have grown some Desmodiums in the cemetery and at my home. I find them to be entirely hardy; and, as good bloomers, they have few equals. The D. Japonicum is white, and its branches when in bloom are hidden by thousands of snow-white flowers from midsummer till frost. D. penduliflorum is similar but with rich purple flowers. For the corner of a cemetery lot they seem to be well adapted. A cross on my own lot in the cemetery, composed entirely of Yucca filamentosa, is very attractive. It is very large, and has been much admired. At this writing its green outline above the snow makes a desirable contrast to the surrounding desolation.

Supt. O. H. Cemetery, Youngstown, O.

GARDEN BEAUTY.

BY T. B. M.

Something new occasionally is needed to keep up high public favor in plants and flowers; but old favorites continue in every summer garden, and, in windows in winter, we see many of the more old fashioned beauties of nature. And why not? A large Calla Lily, a Fern, or a Hyacinth helps wonderfully to keep up the cheerfulness of a room, when, outside, nothing can be seen but snow or rain; and in the summer, there is the pleasure of rivalry with a neighbor in getting up a flower bed which every passer-by will stop and admire. It does not always require room or money. Even the smallest corner will be beautified by having a rose bush, which, when in full

flower, will excite the owner to try his power on something on a larger scale. The pleasure that one gets out of an hour's work among flowers, is something known only to one whose time is locked up in an office all day, or is otherwise restrained from doing anything but routine work.

Wild flowers cultivate well. It always gives me great pleasure to walk through the woods in spring and gather some of the wild beauties of nature in the shape of flowers and ferns for garden culture, and these are getting more popular every day. A rockery does for them and is one of the easiest kind of flower beds to make. If you live in the city, Philadelphia for instance, and have a side or even a back yard that you want to have looking pretty, hire a drayman to bring you a load of topsoil, and dump it in the place you want your bed to be. If you want a round, square or oblong bed, shape it to that design. You will then want some large stones, which must be stuck in all over the heap, leaving only about three or four inches sticking out. Leave it until it rains, or you can give it a good watering which will thoroughly settle it.

And now comes the most pleasant part of it—the gathering of the plants from the woods. As I said before, if you live in Philadelphia you can go along the Wissahickon, or in any woods which are not devastated by people who have no eye for nature. Many fine flowers can be found, if carefully hunted for. Go along some small stream that is surrounded on both sides by trees and bushes, and you may see the fine lace-like foliage of the maiden-hair fern (Adiantum pedatum), and probably in the same place there will be found white, yellow or purple violets. You do not want many of each, for in a year they will spread and kill out some of the more tender plants. In the same place you might possibly find some Orchis or Cypripediums. These two can easily be distinguished. They both have smooth leaves; the Cypripedium leaves are more oblong than the Orchis, which is rather round than otherwise, and has only two leaves, and the flower stalk comes out of the ground bare, while the Cypripedium leaves are scattered along the flower stalk. The common name of the latter is Lady Slipper, this is enough to distinguish it from the Orchis. This has several large bright colored flowers on a spike. You can get many pretty flowers in this way from the woods. Hunt where no one seems to go, that is the best and surest direction for finding good things. Ferns of all kinds will make the rockery the more beautiful. A little moss laid on the rocks will also add to the charms of it. You can get some of the more common cultivated wild flowers from a florist or nurseryman, or a small package of seed from some seedsman; these, if proper care be taken of them, will make as pretty a bed as cultivated greenhouse plants, and will be something which will not have to be planted over every year, and cost little but the pleasant labor of hunting for them.

A very pretty rockery could be made of these wild plants, such as Ferns, in variety, Delphinium, Lychnis, Tulips, Scutellaria, Tradescantias, Violets, Orchis, Cypripediums, Pentstemons, Dianthus, and many others, which, if they cannot be found around your own town, can be bought from some nursery or as seeds of a seedsman.

EDITORIAL NOTES.

THE UMBRELLA PINE.—This very singular Japan tree has produced cones for the first time in Europe, in several places in France during the past season, according to the *Revue Horticole*.

THE MAPLE BORER.—Mr. Wm. Saunders, of London, who has recentiy been re-elected president of the Entomological Society of Ontario, says, that the Maple Egerian, known also as "the legged maple borer," Ægeria acerni, has prevailed during the past year in the neighborhood of London to an alarming extent, to the serious injury of some of our shade trees. These insects, which pass the winter in the larval state under the bark of the maple trees, change to chrysalids early in June, and about the middle of that month they protrude themselves from the bark to the extent of about half an inch, when in a very short time the mature insect escapes, leaving the empty chrysalis behind it.

GROWING LILIES.—There seems to be a growing belief that the ill success which usually attends lily culture in America is owing to too shallow planting. A foot deep is not too much for a lily.

NEW OR RARE PLANTS.

WHITE JUDAS TREE.—A correspondent from Greenfield, Indiana, notes a tree of the Red Bud growing in that vicinity which has white flowers.

RHEUM COLLINIANUM.—We think of the rhubarb as a coarse plant and not much adapted to ornamentation, but some of the species are remarkably attractive, and such we presume will be a new one under this name introduced by

Messrs. Haage & Schmidt, of Erfurt, who give us the following account of it: "A new and very fine ornamental-leaved Rhubarb belonging to the same class as R. officinale and quite as vigorous in

Rheum Collinianum.

growth, but having more deeply cut leaves; the flowers are of a reddish-rose color, those of R. officinale being whitish, and appear some weeks sooner than the latter; a really fine and grand specimen plant."

PYRUS MAULEI.—We saw in flower the past season, for the first time, this new plant. It was thought by some, from the description, to be too near the well-known Pyrus Japonica, so well known in gardens. But the flower is rather orange than red, and the plant is certainly a very valuable addition to our list of hardy shrubs.

VIOLET, NEW YORK.—Under this name they have a violet in England which is thus described by the *Journal of Horticulture*:

"New York is freer in growth than Maria Louise. The plant forms a more compact tuft, does not form runners to any great extent, and has the defect of forming abortive crowns, which, however, is reduced to a minimum by putting in fresh suckers each spring or small rooted runners. The foliage is darker—a deep green with a bronzy tint in the center, and is more leathery and persistent than any of the Neapolitans. The flowers are borne on stalks five to six inches long, stout, but not so stout as to support the flower, which from its weight becomes prostrate, hence I presume the name of pendula. They are large, in good examples over one and a half inches across, dark slate in color with a purple tinge, and the center petals tinged and splashed with red, the base of the petals having a little white, but not nearly so much as in Marie Louise. It commences flowering early in September, and blooms through the winter in favorable weather, being at its best from late September to December, and in February onwards.

JAPAN JUDAS.—This is still rare though one of the most showy of all early flowering shrubs.

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

ORCHIDS IN FEBRUARY.

BY W. A. MANDA.

The lengthening days of February will put the orchid grower again in activity, as every care must be taken and plants watched that are starting to grow. Most of the Dendrobiums will be breaking freely, and any that require more root room should not be deferred any longer, while those that have not this need should be top-dressed with live Sphagnum. In re-basketing care must be taken not to break any roots, and to give as light material as possible, say a layer of best peat at the bottom, the rest to be filled with Sphagnum, charcoal and potsherds: the plant should be fixed about two or three inches above the level of the basket. This is very important as it prevents the lodging of water about the young shoots, which are apt to rot. Water should be given sparingly at first, until the growths reach a few inches. To give them all light possible they should be suspended from the roof, but not too close, else they may get injured by frost.

Ærides and most of the Vandas should be kept at rest, but never allowed to get too dry. Phalænopsis should receive a moderate supply of water. As to Cypripediums, all of the barbatum group, which includes barbatum, barbatum major, Javanicum, purpuratum and superbiens should be encouraged to growth with good supply of moisture at the roots and round the tablets; same treatment will bring to perfection C. Lawrenceanum, C. Parishii,

C. Hookeræ, C. Lowii and hirsutissimum. All of them will recompense the grower with a good show of their gay flowers; some of them are already flowering. C. Dominii after a short rest should, if needed, be re-potted and kept more moist, also C. longifolium and Rœzlii; both of the latter are rapid growers and are better and more compact when divided every two or three years.

In the intermediate house the Cattleyas should be kept dry except Trianæ and its varieties, Eldorado, Bogotensis, quadricolor, Warscewiczii and the new pet labiata var. Percivaliana; all of them are winter bloomers and require limited moisture, as well as all the winter blooming Lælias, like L. Pinelli, marginata, Dayana, autumnalis, anceps and acuminata. Odontoglossum Rœzlii, O. citrosmum and vescillarium, generally grown in this house, should not suffer too much dryness.

The cool-house also deserves no less attention. Any plants of Oncidium or Odontoglossum that are pot-bound can be transferred into a larger pot without much disrooting the plant, provided the old material is sweet. Cypripedium Sedenii and Harrisonii should be kept a little dryer so as to give them slight rest; but C. Boseallii, venustum and insigne should not suffer from want of moisture. If any of the Masdevallias get sour at the roots they should be taken out and potted without delay, while those in good condition can wait till next month. As a general guide, increase the humidity of atmosphere by damping down the floor and round the pots, this will help the plants to bring out their growths.

Notwithstanding the dull and frosty weather the following plants are in flower with us:

Angraecum eburneum.—This noble orchid has six ivory white flowers on a spike; it is of easy culture, provided it gets East Indian heat, and liberal supply of water during the time of growth.

Eulophia picta, produces five or six little flowers on a spike from the base of the bulb; the color is white and rose.

Calanthe vestita and var. lutea-oculata, are among the most showy and useful orchids, especially where cut flowers are needed. The color of both is pure white with a crimson blotch in the former and yellow in the latter.

Oncidium Papilio.—This, although not a new species, is one of the best of the genus. Our plant is especially a good variety. The flower is six inches across, the petals red-brown barred with yellow, sepals dark brown, lip very large red-brown with a wide yellow center and narrow edge of the same color. The spike should not be cut as flowers are produced on the same in succession.

Liparis pendula—a little plant attached to a block having spikes of about fifty white flowers, though not large yet graceful.

Cypripedium longifolium.—Our plant flowers all the year round, and though not so showy as many of the genus, yet worth growing. The flowers are of greenish color.

C. Rœzlii.—Not so robust as the former but more beautiful flowers. Petals and sepals rose, lip greenish yellow.

C. purpuratum.—This is a gem of the group it belongs to; a moderate grower, with straight, beautifully variegated leaves and showy flowers. The upper half of the dorsal sepal is white, the lower purplish, lip and the petals of the same color.

C. insigne.—Useful and fine species which needs no description, as anyone having a collection, however small, is not without it. There are several varieties, some better than others, but generally the whiteness in the upper sepal makes the value of a variety.

C. venustum.—This fine old species is very useful on account of its dark foliage, also being a winter bloomer. In our plant the petals instead of being greenish are purple-brown color; it is more attractive, because of the dorsal sepal being green passing in white, the lip yellowish.

C. Sedenii.—Although a hybrid it has become very popular; easy of culture and rapid grower, producing its crimson flowers for five months in succession from a stem one foot high. Raised at Mr. Veitch's between C. longifolium and Schlimii and named after the raiser.

Lycaste lanipes.—It is to be regretted that this plant is so seldom met with. Stronger grower than L. Skinnerii, flowers about the same size, of fine substance and produced in quantity; the color is greenish, the lip finely fringed, mowing like elastic.

L. Skinnerii.—Range amongst the most useful and beautiful of orchids. Having all good qualities, easy grower, profuse bloomer, singular shaped and finely colored flowers, lasting a long time in perfection, and good for cutting on account of the long stalks. There are many varieties, the ordinary is white, rose and crimson.

Zygopetalum Mackayi.—Very useful winter blooming plant of strong growth. Flowers of large size, about six on a spike, the petals and sepals are green barred with brown, lip is lilac finely veined.

Maxillaria densa.—Cluster of flesh colored flowers of small size.

M. variabilis.—A dwarf grower with dark brown flowers.

M. variabilis var. lutea.—Differs only in having yellow flowers as the name indicates.

Epidendrum floribundum.—Tall growing plant with drooping racemes of small white flowers spotted with crimson.

Cœlogyne cristata.—Useful plant to cut from. It is of compact habit, easy to grow, a freely flowering species. The flowers are white with yellow center on the lip. This plant should be in every collection.

Phaius grandifolius.—A fine terrestrial orchid with stout spikes of beautiful white and brown flowers. *Bot. Gardens, Cambridge, Mass.*

CEMENTING PLANT BENCHES.

BY PETER HENDERSON.

When I rebuilt a portion of my greenhouses five years ago, experience had taught me the necessity of providing something more permanent than ordinary boarding for the benches, as it is well-known that, with the ordinary hemlock or pine boards, benches will not last more than four or five years. All my new benches put up at that time were made with ordinary roofing slate with a covering of half an inch or so of cement spread over them. This gave strength enough to hold a boy of one hundred pounds weight. The bearers we used were of yellow pine. These benches cost only about twenty-five per cent. more than the ordinary board benches. They have now been in use for over five years and look as if they would last for fifty years to come. Since then whenever any of our old front board benches have given way we have always slate on hand to use in rebuilding, but in some of our wide middle benches, where it is necessary for men to walk on them, the slate is not strong enough, and on such we have adopted the plan of spreading an inch of cement over the wood, using two parts sand to one part cement, which soon hardens to be as solid as flagging. There is no need of cementing the board benches until they have been in use two or three years, as they will not decay before that time, and besides it is better to have the benches well seasoned so that there will be little expansion or contraction before putting on the cement. We have old benches that were cemented five years ago that are perfectly sound. Of course when such benches are cemented, provision must be made for letting off the water. This is usually done by using double bearers every eight or ten feet, and cutting out a space of an inch or so of the boarding so that the water can pass through. Anyone by this process of cementing can preserve wooden benches ten years, and maybe longer. Those which we did five years ago are yet perfectly sound, and are in every way as satisfactory as our slate benches. Any old wooden bench showing signs of decay can be preserved in this way at trifling expense. Every bench in our greenhouses to-day is cemented either above the boards or above slating. *New York.*

DRACÆNA GOLDIEANA IN FLOWER.

BY JOHN F. CLARKE.

It may be interesting to many of the readers of the GARDENERS' MONTHLY, to know that this plant has flowered with D. Fergusson & Sons. We have never seen or heard of its flowering before. The plant commenced to form a terminal head about December 20, 1883, and continued to increase in size until January 19, 1884. At that date the head measured from 2½ to 3 inches in diameter, and the first flowers commenced to expand. The flowers are assembled close together. They do not all expand at once, but come out in succession, so as to keep up the inflorescence for a long time. Another singular feature in this remarkable plant is, that the flowers commence to open about 4 o'clock P. M., each day, and before 7 o'clock A. M., they are wilted and turned dark. The head will average from 25 to 50 flowers a day, and the plants while flowering, filled the house with the odor of Hyacinths. The flowers are a waxy white, somewhat like that of the Roman Hyacinth in size and form. To describe the flowers properly, I am obliged to use a few Botanical terms: Flowers regular; petals six-toothed and recurved; stamens six, adnate and turgid, or swollen near the points. They are also erect, and adhering to the inner side of the corolla tube, or perigynous. Stamens introrse, or turned inwards: style longer than stamens; stigma three-lobed. Twenty-four hours after the flower faded the ovary appeared to have three cells, oblong, and about the size of an ordinary pinhead. With the aid of a pocket microscope, I succeeded in getting three transparent ovules. It would take about twenty of them to cover a small pinhead. This was the most interesting point, as we were all anxious to know if it would probably seed. There is also a plant, Dracæna terminalis, coming in flower, and, if possible, I will cross them; if not, I will try to impregnate them with their own pollen. This, I suppose,

will have to be done at night, as there is hardly any pollen for some hours after the flowers expand.

Laurel Hill Nurseries, Philadelphia.

BUDDING ROSES FOR WINTER BLOOMING.

BY G. GEDULDIG.

Many slow growing roses may be made to grow vigorously and bloom well by budding them on strong stocks. Such sorts as Niphetos, Perle des Jardins, and Marechal Niel do best on the Banksiana. It must be borne in mind that to have such roses bloom in winter they must be worked on such sorts as need no rest, or but little. Roses that make fibrous roots are the best to bud on, such for instance, as Lamarque, America, Banksiana, &c. The large flowered white Banksiana rose, that is used for hedging in the South, is the best of all for the purpose. Madam Trotter is another good one for stock. I prefer it to any other one for budding my hybrid perpetuals on. It is even better than the dog rose, having more fibers. To have the best success always bud on a main stem, not on side branches. It gives longer life and larger buds. *Norwich, Conn.*

VRIESIA SPECIOSA.

BY CHARLES E. PARNELL.

The showy Vriesia speciosa is a very singular stove or warm greenhouse plant belonging to the natural order Bromeliaceæ. It is a plant having the general appearance of a Bilbergia, which it strikingly resembles in habit and manner of growth. The leaves are broadly ovate, about ten inches in length, of a dark green color, with transverse black bands. From the center of the plant arises a tall spike, a foot or more in length, of bright scarlet bracts, from which the flowers are produced. Although the flowers which are small and of a yellow color are quite transient, yet the plant continues to be for a long time exceedingly ornamental, the most showy part, the spike of richly colored bracts, being very enduring. Very gradually the bright scarlet becomes duller and eventually greenish, and at last extends over the whole spike. It is not what we might term a very rare plant, yet it is to be found in a very few collections only, although it is well worthy of the attention of amateur plant cultivators. It is a fact to be regretted that nothing of its history is known with certainty.

This Vriesia requires a treatment similar to all plants belonging to Bromeliaceæ. It should be given a compost of rich fibrous loam and well decomposed, of well-rotted leaf-mould in equal parts. Drain the pots well and use the compost rough, and pot the plants lightly. When growing give a temperature of from 55° to 60°, and one of 50° to 55° when at rest. Start the plants into growth as early in the spring as possible placing them into four or five-inch pots in a warm light position; water freely when they commence to grow, and about the middle of summer shift into six or seven-inch pots according to the size of the plants. At this season they should be given a liberal treatment in order to obtain a strong vigorous growth, and about the end of September they should be gradually brought to a state of rest. Keep dry at the roots, until they are wanted to flower, when they should be watered freely and every means employed to induce a vigorous growth of the flower spike. After the flower spike has decayed, the old plant can be cut away, and the suckers which will be produced, can be treated as advised for young plants. In this way only can the plant be increased. *Queens, N. Y.*

EDITORIAL NOTES.

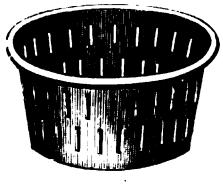
EXCELSIOR FUMIGATOR.—Most florists know how necessary, and yet how annoying, is the fumigating department. But there has been a great advance during the few past years. In the writer's time, the operator had to rush into a house full of smoke, once in awhile, in order to stir up water, or put more on the hot mass. Then came schemes for blowing through a bellows—but even to this day, the open pot plan is the most often used for large houses, though flame and other destructive agencies often destroy the plants as well as insects. Last year there were some very good improvements offered in our advertising columns, among which the Excelsior fumigator, illustrated at page 15 of December advertising pages, will be fresh in the minds of our readers. We have since tried this machine and find it to be everything the inventor claims for it, and for about the first time in a half century of garden work we can go about the work of fumigating greenhouses with positive pleasure.

BOUVARDIA, THOMAS MEEHAN.—This is announced as one of the novelties of an American firm who have previously sent out the now well-known Bouvardias, Alfred Neuner and President Garfield. It is said to be the result of a cross between Bouvardia A. Neuner and leiantha. The

flowers are described as being very double and of a brilliant red color. If this prove as good as the white variety it will be a great acquisition.—*London Journal of Horticulture.*

ORCHID BLOCKS AND PANS.—Some of the fascination attendant on orchid growing comes from the fact of their being air plants. Their growth on blocks and in baskets is so different from other plants that they attract by their very peculiarity.

It is customary to make wooden baskets for the species which require them; but it is hard work, and at best they are perishable. Very nice articles of pottery-ware can now be had from those dealers in earthenware who look after the needs of florists, which will do just as well as blocks or baskets, and are cheaper in time and quite as



durable—and we were struck by the great variety offered in the catalogue of A. Hews & Co., of Cambridge, Mass., whose advertisements have often been seen in the advertising columns. We have selected a few of these to accompany this paragraph, so as to give our readers a better idea of what we mean.

ROSE, SUNSET.—A committee of the New York Horticultural Society says of this: "Ten roses of this new variety were shown in fair condition, going to prove it must at once take a foremost position as one of the very best. Its place undoubtedly will be in the group of which Safrano and Mme. Falcot are the type, to which it is superior in size, thickness of petal and fulness of flower, its other properties being an exact counterpart of Perle des Jardins."

DISEASE IN WINTER BLOOMING ROSES.—The Florists of Philadelphia, and probably elsewhere, have suffered seriously this winter from a fungus among the roses. The leaves "scald" as if they had been hardly handled by a tobacco fumigator, and eventually fall off. Then the roses are poor and the new growth feeble. At times the whole branch dies from the fungus attack.

SCRAPS AND QUERIES.

NEW CARNATION.—"J. B. T.," Detroit, Mich., sends for examination a flower of a new seedling Carnation, but which unfortunately came to hand as dry as a chip, and we are unable to say anything about it.

GROWING VIOLETS.—"J. D.," New York, writes: "I am about to attempt raising violets on a large scale, and I hardly know what way to raise them. Some tell me to use nothing but cold frames, as there is little expense with them. Others say build houses and heat them with hot water. I would like a word or two from some of the readers of the GARDENERS' MONTHLY. I take the magazine and see that you, yourself, answer queries like this sometimes, and if you think this worth such answer I will be very much obliged. Could you give me an idea what it costs a running foot to build a greenhouse 20 feet wide?"

[The very best instructions we can write will not obviate the necessity of some practical experience. But in a general way we may say that violets may be grown either in cold frames or in houses heated with hot water. The latter is preferable and will yield the grower a larger percentage of profit. The cold frames are of course much cheaper and more easily constructed. To prepare a frame it is best to dig a shallow pit, and fill with good top soil, about which build the frame and bank up earth on the outside to the top of the boards. In the winter cover the sash with boards or mats for protection against severe cold. Every sunshiny day remove these covers to give light to the plants, replacing them before the sun goes

down. It will probably not be necessary to water the plants during the winter. As soon as the weather will permit give air daily. Cold frame grown violets will yield a good quantity of bloom. One disadvantage in frame grown violets is the difficulty in getting at and picking them during extreme cold weather.

In-door grown violets should have a house built especially for them, and should be about ten feet wide; the sides being low, say a foot above the ground. Dig a narrow walk down the center, leaving solid beds on each side, which should be as near the glass as possible. The temperature of the house should be kept at about 45°. Give air every fine day during the winter.

Violets do not like bottom heat at all, and very little top heat, therefore the hot water pipes should be placed on the edge of the beds, and only a sufficient amount of feet to heat the house properly.

To grow violets for forcing, as soon as the frost is entirely out of the ground and the soil is dry enough to work, take old clumps of plants, and divide into small crowns and plant out about eight inches apart, in rows sufficiently far apart to allow easy and frequent cultivation.

If double violets be the variety grown, care must be taken during the summer to cut off all the runners, as they prevent good and abundant bloom. If single kinds, this is not necessary, nor do they make many runners.

As the red spider has a partiality for violets, it would be well to plant them in a situation where they may be frequently syringed with the hose during the summer. In the fall lift the plants and plant them in the frame or house as close together as possible. In a house during the winter an occasional hand syringing with tobacco water will be found beneficial, both as a fertilizer and a preventative to insects.

A good commercial house, twenty feet wide, plainly built, with cheap ventilating apparatus and without boilers and pipes, may be built for about $6 per running foot.—Ed. G. M.]

NAMES OF PLANTS.—Jonathan Primrose: No. 2. Jasminum nudiflorum, the extra early Japan Jasmine, and not the "Carolina Jasmine," which is Gelsemium nitidum.

No. 1. Genista Canariensis, a very beautiful winter flowering plant of easy culture.

No. 3. A leaf only—apparently of Inga pulcherrima—a plant nearly allied to the Acacia, as our correspondent suggests.

PROPAGATION OF FERNS.—"Subscriber," Philadelphia, writes: "I like the article in December number on 'Propagating Clematis,' I think if you would treat other plants the same it would be of interest to a great many. I should like to see an article on growing Ferns and Pandanus, telling in detail how to grow them. I think any article of this kind would be of value to the amateur or beginner, and would increase the interest in the MONTHLY."

[We cannot treat the fern as we did the clematis, because there are an immense number, and so many of them require treatment different from others; but if we confine ourselves to propagating them from the spores, as a general thing, we may say that they require continuous air and moisture. The best way is to get a saucer of water and put a brick in it, and on this brick scatter the fern spores, then place a bell glass over the whole. In a month or six weeks there will be a plentiful supply of plants if the temperature suits the kind, which can then be moved to earth in pots.—Ed. G. M.]

TREATMENT OF CHINESE HIBISCUS.—"Wm. M.," Philadelphia, writes: "As a subscriber to your magazine, I write for information in regard to the care and treatment of greenhouse varieties of Hibiscus. I have a few large plants, both single and double, in tubs, and find that after digging them up in fall they continue dropping their leaves, and remain bare long after being planted out again in June. If you will kindly give me a little information on the subject, and also how and when they should be pruned, you would oblige."

[These plants are intermediate between an evergreen and a deciduous plant, and it is common for them to lose their leaves, when transplanted as described by our correspondent, without its being regarded as any serious injury. Indeed, some believe they bloom much more freely for this treatment. If the leaves are desirable this can only be secured by lifting the plants with very great care, and placing them at once in a close, warm place, where there will be as little check as possible to continuous growth. They are extremely beautiful plants for both summer garden decoration and winter greenhouse adornment.—Ed. G. M.]

GLAZING GREENHOUSES.—F. B. Smith, Danville, Ill., asks: "Which is the best way to glaze a greenhouse? Should the glass be butted up, or should it be lapped?"

[Some attempts have been made to glaze by butting the edge of one sheet of glass against an-

other—dipping the edge first in white lead—and it is the perfection of glazing. All the light possible is generally needed in greenhouses, and it is desirable to retain all the heat possible in cold weather, and this is all aided by this system of glazing. But even paradise had its attendant evils, and so has this system of glazing. For instance, if a pane gets broken it is very difficult to fit in another so that there will be no leakage. Another trouble is, that when a house is very tightly glazed the moisture freezes on the glass, and when the sun comes out there is a shower of snow on the plants, which is not pleasant and often injurious. This moisture escapes through lapped glass, and, although there is some loss of heat, cultivators generally prefer to lose the heat than have the snow.

On the whole, lapped glass is preferred. But laps should be as narrow as possible. If the laps be broad, dirt settles under, and this just so much shades the house. If we have twelve-foot sash, six-inch glass and half-inch laps, when the laps get dirty it is equal to one-twelfth less glass. Again, in wide laps the moisture condenses, and the water is held and then freezes, the expansion cracking the glass through the middle. In many greenhouses the broken glass from cracking through the ice under the broad laps is enormous.—Ed. G. M.]

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

No matter how carefully one may proceed in the selection of varieties of fruit trees, there is always an element of chance which no forethought can overcome. Location, soil or other circumstances have much to do with the success of the most popular variety, and it may not be all we wish for when it comes into bearing. Even the stock on which the variety is grafted will make a difference. Pear and apple stocks are raised from seed, and it is from seed that new varieties originate. Among the seedlings are some which, if permitted to grow to trees, would be some very vigorous growers, and others slow or stocky ones. The same variety grafted on stocks of opposite character, can not produce fruit in all respects alike any more than would a variety of pear grafted on the quince or the same grafted on the pear. A Duchess on a dwarf stock is different, both in eating qualities and productiveness, from a Duchess grown on a standard pear stock; because the growth or nutrition is interfered with on the weaker more than on the stronger stock. But after one has an apple, pear or cherry, full grown, and it does not come up to expectation, it is well to graft it with some other kind which by experience we find to do what we desire. It is probably one of the reasons why the earlier fruit growers did better than so many moderns that they were mostly fond of grafting, and were continually changing the tops with the better kind. Now-a-days if one has a White Doyenne, St. Germain, Beurre Diel, or other variety of pear, which produces worthless fruit instead of the delicious products of the past age, the modern effort is to try some scheme to cure the disease. The old plan, and probably the wiser one, was to top graft it with some more certain variety. Every good orchardist should cut grafts before the leaves push, and bury these scions in the earth; after the sap begins to actively ascend, the grafting process may be begun. If the scions have been properly preserved, so that the buds do not push, the grafting is much more likely to succeed after the leaves of the stock have grown a little, than before. But though this success may go on through into midsummer, the sooner after the spring opens the grafting can be done the stronger will the growth of the scion be.

The great enemies of the fruit grower, insects and fungus growths, are now measurably kept down by stem washing. Even ordinary lime washes, colored to prevent glare, are useful, for large numbers of species of fungi which like to grow on dead wood or bark, will not start on limy substances. Nor do some insects care to work through to get at the bark. But soapy substances are particularly noxious to most classes of insects and species of fungus, and it is excellent practice to wash the stems therewith. Grapevine diseases are kept in control by those who manage them under glass, by washing the stems

before the leaves push, with lime and sulphur, and no doubt such treatment would benefit the grape in the open air.

The enormous crops produced by the Kieffer Pear, and consequent depreciation of quality where a good dessert fruit is desirable, has caused more than usual attention to be given to the necessity of thinning where superior flavor is desired. In cases where quantity is preferred to quality this may not be of so much importance; yet it is worth remembering that heavy bearing often tells on the future vigor of the tree, and on this account some degree of thinning, when there is a tendency to produce large crops, may be always desirable. If pruning has not been finished where the leaves have not yet begun to push, it should of course be finished at once. The pruning knife is one of the most useful implements in a judicious hand. The great aim in most bearing trees is to thin out those shoots which show symptons of exhaustion, so as to always keep a stock of young and vigorous growth.

In vegetable growing there has not been much novelty developed of late years in regard to practice. There is yet much difference of opinion whether asparagus plants ought to be set deep in the ground—say nine or more inches—or shallow, say four or less. It is very desirable to have it early as possible, and it is contended by some that when but four inches deep, it gets the benefit of the warm sun as soon as the ground is thawed that deep; while the deep planters contend that when the root is below the frost, the natural warmth of the earth keeps the root in condition to grow strongly at once when the thaw comes. Again, some like tender white in the asparagus while others would as soon have it green. It is believed that the tender white stalks proceed from the deeper planted, while the tough white follow the more shallow planted roots. So far as we know, these matters have never been settled by side-by-side experiments. Each grower follows his own notion. Market growers usually plant deep, so that they may make the ground soft and clean in spring by a shallow ploughing over the roots. In all vegetable crops manure is the one great secret of success.

Deep, rich soil, now so generally condemned for fruit gardens, is of the first importance here. Soil cannot be too rich or too deep, if we would have good vegetables. It is, indeed, remarkable, that in many respects we have to go very differently to work to get good fruits than we have to perfect vegetables. While, for instance, we require sunlight to get the best richness to our fruits, our vegetables are usually best when blanched or kept from the light. So, also, as we keep the roots as near the surface as we can in order to favor the woody tissue in trees, we like to let them go deep in vegetables, because this favors succulence.

COMMUNICATIONS.

MUSHROOMS.

BY T. BENNETT.

The mushroom is a very scarce vegetable in our markets, except for a very short season, and it is a great pity for it is a great luxury.

Few people seem to have acquired a taste for it, perhaps from its scarcity, but I think the time is not far distant when a bottle of nice mushroom catsup will be considered a necessary condiment on every farmer's table. The prevaling opinion seems to be, that there is something very mysterious in growing them; and a great many people do not know how to distinguish between an edible mushroom and a poisonous toadstool.

I may be told they are a luxury that can be done very well without; to which I answer: So was tea in the time of our forefathers. But who would like to part with tea now? The mushroom only requires to become well known and its management properly understood, to be appreciated; and when it does, it will become almost a necessity, like many other blessings we now enjoy. Most good gardeners I believe grow them, but it is chiefly for private families.

When the farmers begin to grow them they will be found a profitable crop, their use will become general, and they will be found plenty in our markets. I do not wish to go over the ground already gone over so often by others, but to show in what I differ with them, what additions I have made (improvements, if you wish), and how easily they can be grown in abundance by any one who wishes to take a little trouble in the matter. There are many works, I believe, written on the the subject, which I have not seen, but what is here given is the result of many years' practical experience.

In the first place 60° is about their mean temperature. It will readily be seen that they do not need a hot-bed in any of the summer months. A dry cellar, built of brick or stone, is best adapted to their growth in this climate, but an arched cellar built in a bank, with its end facing to the south, is peculiarly adapted to them. Little flat beds on

cellar floors, made up of proper materials, will give abundant crops all summer and fall without artificial heat. A little light and a little air is necessary for wholesomeness' sake. In the next place, wood of any kind, especially pine, should never surround the beds when made on the ground; but the beds should be built up against the wall with a few bricks in front to keep the materials together. Common house slates, sunk in the beds, perpendicular to the wall and on their edges, about two feet apart, to half their depth, will obviate the necessity of watering in a great measure. These will be found dripping with water nearly at all times—by the wall, by the bricks, and by these slates, they will be found very often more plentiful than on other parts of the bed. But a successful crop bears all over the face of the bed in the greatest profusion. To have a successful crop, abundance of spawn is at all times needful. It is well known that mushroom spawn breeds, or originates in materials adapted to it; but many people will scarcely believe that a bed made up of proper materials, will, after five or six months, yield a plentiful crop without having been planted with spawn. However, it is not till after this spawn has bred plentifully in the bed, it begins to bear. It is not my intention to philosophize or go into elaborate details of what spawn is, but to enter at once into the practical part of the business. It is admitted by all that fresh maiden earth from under an old sod, or sods of an old pasture rotted well down, clean, and free from weeds, is the best kind of soil to earth over the beds with. Lime, old or new, is excellent in their compost, and oystershell lime by far the best of any. Old, dry, turfy peat, not that from a swamp, or in any way sour, is excellent in their compost.

There are different methods of originating mushroom spawn, but the droppings of horses highly fed, is considered the best or one of the best materials to work with. The droppings of horses out on grass will not do.

To originate spawn and have plenty at all seasons, let boxes of almost any convenient size be got ready and filled alternately with layers of dry horse droppings and red or yellow clay well dried. Old bricks pounded up fine are best. One inch of clay or brick dust, and three or four inches of the horse manure is about right; and when the boxes are full let them be well trodden down—the harder the better—and put in a warm place. Good, natural spawn will breed in these boxes in about four or five months; but if a few pounds of spawn bricks be bought at any seed store, broken up into small lumps and placed in the center of these boxes, they will be full of good spawn in about one-half the time. After a few boxes of spawn have been generated in this way, it can be increased to any amount very soon by mixing some into other boxes of droppings, and in this case no earth need be put in the box.

It may be well to have a stock of spawn bricks on hand, for they will last many years if kept dry and in a warm place. I agree with the mode of making them, as recommended in the different garden books, but there is no need to impregnate them in the old way, but place them in a conical pile, or any convenient way, and between every layer of bricks put a layer of spawn from the boxes. Cover up well with straw in summer, or warm horse manure over the straw in winter, sufficient to throw a gentle heat into the pile, and after about four or five weeks the whole pile will be one solid mass of mushroom spawn. The place where mushrooms grow should be free from underdamp and noxious vapors. Straw covering is preferable to hay, as wet hay lying on the bed breeds noxious fungi, which would soon destroy the whole crop. To make a bed is a simple process when properly understood. Most people take too much pains, and this is the cause of many failures. But one thing is certain—they are greedy feeders, and must be well fed to have a good and lasting crop. Flat mushroom beds are recommended to be made of three or four-inch courses of dry horse droppings, with two-inch courses of earth between them; but these beds I found to soon run out and get too dry. Therefore, let about three inches of old, soft, unctious manure be placed at the bottom of the bed in every case, with a small layer of earth underneath about half an inch thick, then one inch of earth on top and well trodden down. Then about three inches of droppings with a good coat of spawn from the boxes; then another layer of droppings, and all well trodden down and left for two or three weeks, or till the spawn has begun to run all through. Then, and not till then, must the last coat of earth be put on, which is best made up of three parts maiden earth and one part turfy peat, with a good sprinkling of oyster-shell lime through it, laid on two inches thick and well trodden down, afterwards smoothed very hard with the back of a spade. Then covered up with straw till a white mold covers the bed and mushrooms all over, like peas thickly scattered, when the straw may be taken off altogether. This is only one of about a dozen ways; but in all cases the old rich manure

must be at the bottom. It must have been turned several times to sweeten and partly dry before it is used. These are a few of the principal points to be attended to.

There is one thing I wish particularly to mention to all who grow mushrooms, that is, to beware of salt. Dirty salt is often thrown out of horse and cattle mangers and gets mixed up with the manure. The smallest quantity of this will render a mushroom-bed unfruitful. This is the true key to the theory of throwing salt over grain crops in the spring of the year, which every farmer does, or ought to do, to keep down and kill rust, smut and mildew, and every other species of fungi. Besides, salt kills worms, grubs and numerous insects injurious to grain crops, and I believe is a good absorbent of moisture, as well as a good manure.

Mr. Editor, I believe this article is already too long, and in trying to be brief I may have become obscure. If you think any more is wanting to this article I will be happy to communicate.

Chambersburg, Trenton, N. J.

WATER CRESSES.

BY JAMES MC KENNA.

I don't think Mr. Balderston need regard as so mysterious the growing of water cresses. Water cress is grown by us Montrealers without the aid of spring water or running brook. We simply stick it in in the form of cuttings, on a well drained bench of sweet soil, in the fall, in a house where the heat is about 45° all winter. Sprinkle freely, and we have cress all winter, and all summer if required, by shading. Some of our Montreal hotels must have water cresses on their tables all the year round; and as it is not found growing wild in this vicinity, it is always a luxury. Parsley and mint we also grow in large quantities on the same plan. *Cote des Nieges, Montreal, Can.*

GROWING THE JAPAN PERSIMMON IN TUBS.

BY J. B. GARBER.

I can hardly write so as to be read, from failure of sight and nervousness, but I wish to inform you of the success of growing the Japan persimmon in tubs, as many people grow orange trees. My small shrub, in a nine-inch pot until last spring, when I moved it into the one-half of an eight-gallon cask, barely four gallons of soil, produced and ripened eighteen large yellow seedless persimmons. They are the most luscious and delicious fruit that I think I ever tasted. I keep the plant in a cellar, the front above ground. The earth in the pot has frequently been frozen as hard as a cannon ball, but has not injured the plant in the least. These persimmons are not like our native varieties; there is no astringency at all about them, and when perfectly ripe become very soft and can be best eaten with a spoon, as it is said they do in Japan. I believe the plants can be kept during winter in any outhouse or stable, and during mild winters, when the thermometer does not fall much below zero (4° this winter), will survive and bear its delicious fruit profusely. Grafted high on our natives or on high ground, as on some of our hills, if shielded from the sun for a few winters, I believe they can be grown in the open air.

Columbia, Pa.

[In addition to the value of this article is the pleasure of a note from so old and valued a correspondent, for Mr. Garber is far beyond his three score and ten—now in his 84th year.—Ed. G. M.]

NOTE ON AN EXPERIMENT WITH NATIVE POTATOES.

BY PROF. WILLIAM A. BUCKHOUT.

Within the past year, tubers, collected in Arizona in the fall of 1882, have been sent out to various applicants by Mr. J. G. Lemmon, of Oakland, California. We planted seven of these little potatoes in ordinary garden soil, and gave them ordinary culture. One failed to grow; from the others, one hundred and sixty-seven tubers were produced. They averaged no larger than those planted, although several of them were about an inch in diameter. They are simply diminutives of the cultivated potato. All were flattened, globular, and had relatively large whitish spots. On exposure to the air they turn color in a few hours, and become of a dull ashen color. The skin is about twice as thick as in the domesticated varieties, and immediately beneath it is a colored layer, deep purple by reflected light, but when placed under the microscope and viewed as a transparent object, it is a clear violet. The cells and starch grains are not appreciably different from those parts in the cultivated tubers. It was the intention to test their edibility, but they changed color almost as quickly as the cut surface of an apple when exposed to air and light, and having delayed a day or two, we found them fully as bitter and unpleasant as our ordinary potatoes when they have become green by prolonged exposure to light. When cooked immediately after digging they are probably sweet and palatable, as they are often used by the Indians.

It is not at all likely that any immediate good result to the farmer will follow his cultivation of these native potatoes. Some persons appear to be under the impression that the first crop will show a considerable change in the size and in the quantity of the product, and that cultivation a second year will fix and increase these desirable qualities still more, and so on, until within a few years they will become valuable for cultivation. But such quick results cannot be inferred from what we know of the origin of our cultivated plants, and our experiment fails to bear out the idea. That marked variations from the normal condition of a plant may appear spontaneously in some of its progeny is probably true; but such cases are not common, considering the number of individual plants under cultivation, and their occurence cannot be indicated beforehand. Hence, for the practical cultivator, these potatoes have as yet no value, but under the hands of the experimenter they may in time be so improved as to be worthy of general cultivation. This result may be secured either by crossing them with varieties now in cultivation, or, possibly, by developing some natural variations through prolonged and careful culture under various conditions. We shall endeavor to continue the experiment the coming year.

Agricultural College, Pa.

CELERY—WHITE PLUME.

BY DR. LORING W. PUFFER.

I am in doubt whether I had better say a word about Mr. Henderson's new celery, because I think he has done a great deal for floriculture in America, and do not desire that what I may say should be taken in the way of unkind criticism. What I say is this, that while the "White Plume" may be beautiful to the eye, the flavor of any celery grown, exposed to sun, light, and air, will not be of the same flavor as that grown in the old and troublesome way. The action of the sun developes a different condition. This is readily seen in the potato, and justifies your remark in the January number of the MONTHLY, "that to your taste it was not as nuttily flavored as the best kinds of the old-fashioned class." Of course not, and never will be, unless it is covered from the sun-light.

Brockton, Mass., Feb. 4th, 1884.

EDITORIAL NOTES.

LENGTHY AND HARSH NAMES FOR FRUITS.—Among all the sinners against propriety the French are perhaps the greatest. Mr. Barry in his recent Presidential address remarked: "Quite recently I had some correspondence with the editor of a leading French horticultural journal, and he has promised to have the matter brought before their societies. A distinguished French author, Decaisne, in his great work, the "Jardin Fruitier du Museum," attempted reform and made a vast number of changes to simplify and improve the nomenclature, but scarcely any, perhaps not one, of his changes have been adopted in catalogues or other publications. It is difficult to change a name of long standing and general use. Nothing but a general and well-directed movement will do it. Our nomenclature is really a reproach to pomological science, and if this movement succeeds it will be the crowning work of the American Pomological Society."

They ought to know that when their long names get here, we have to shorten them. We have the Duchess and the Congress pears, though each but one-third of the original name.

WILSON JUNIOR BLACKBERRY.—Is a new variety raised from Wilson Early, and said to have many excellent points.

THE CUTHBERT RASPBERRY.—This receives praise for the flavor of the fruit from California growers.

GRAPE PRODUCTS IN CALIFORNIA.—The receipts from an acre of Tokay grapes are about $200.

HARVEY DAVIS STRAWBERRY.—Is said to have been in culture ten years in the vicinity of Boston, and highly thought of by those who seem to have been in the secret of its existence; but thought not as profitable as Downing or Sharpless for marketing.

LADY INGOLD PEACH.—Originated on the farm of Alfred Ingold, Guilford Co., North Carolina. It ripens there between Hale's Early and Early Tillotson; and has the advantage of being a large peach. It is yellow fleshed, and high colored, and a clean free stone.

PEACHES IN EASTERN PENNSYLVANIA.—For some reason these have not been a great success the past few years, and the report is that the growers are discouraged. A few have had profitable returns.

TWO RELIABLE APPLES.—Mr. P. Barry says that no matter how badly other varieties may fail he always gets good crops from Maiden's Blush, and the Duchess of Oldenburg.

THE SALOME APPLE.—This is a western variety

originating with Mr. E. C. Hatheway, of Ottawa, Ills. It is said to be as large as Red Pearmain, flavor of Rawle's Janet, will keep till July, and is enormously productive.

THE QUINCE.—In Eastern Pennsylvania has proved the past year one of the most profitable of crops, and attention is being given to improved methods of culture. The market price is usually just double that of apples, whatever that may happen to be.

FINE HOTHOUSE GRAPES.—At the January meeting of the New York Horticultural Society, Mr. Louis Compondu, gardener to Mr. Charles Butler, of Fox Meadow, N. Y., exhibited a bunch of Black Hamburg grapes weighing 3½ lbs., and a Barbarossa weighing 4½ lbs. We suppose these weights have never been reached in the month of January in that region before; and shows very high skill in grape culture.

GRAPES IN THE WEST.—The last season's crops in Ohio especially, is said to be the worst failure in ten years.

A LARGE PEA.—A Mr. Muir, in England, claims to have raised a pea the pod of which is seven inches long and one and half inches wide. How large has any one in our country raised a pea? Or must Uncle Samuel take off his hat to grandfather Bull?

SELF-BLANCHING CELERY.—Looking over the *Revue Horticole* of 16th October last, we note a celery under the name of Chemin celery, from M. Chemin, of Issy, the raiser, which is also self-blanching as is the one described by Mr. Henderson. It is described as yellowish-white. It is not only of very pretty appearance, says the editor, but is very good, very solid, and savory, and very good to eat. "It is truly a revolution, though a peaceful one, which has resulted in the production of Celeri Chemin."

WHITE PLUME CELERY.—It is well known that when any novel circumstance originates in one part of the world it is not unusual for a similar one to appear about the same time in other parts of the world. After the notice of Mr. Henderson's "white plume" in our columns, we read an account of a sort of a similar character; and we now find that Messrs. Vilmorin, Andrieux & Co., of Paris, have also a variety called "golden yellow large solid" which is also a self-blancher. How near these may come together we do not know; and comparative experiments will be looked for with interest the next season.

SCRAPS AND QUERIES.

PEACH TREES IN SOD.—A Maryland correspondent says he has a peach tree on a lawn which is kept closely mown, which is perfectly healthy and bears large crops of fruit annually, while all his orchard trees have long since succumbed to disease. He inquires whether it would be wise to treat a whole peach orchard like this? In our country where much of the trouble of fruit growers comes from the earth getting too warm in summer, a closely mown lawn is the perfection of good culture. Grass, when continually mown, has not very strong roots, and does not therefore rob the peach tree of its food, while nothing will keep the surface of the earth cooler. This is the reason why all fruit trees do best in grass as a general principle. But many people expect to get heavy crops of grass as well as heavy crops of fruit, all out of the same amount of food in the soil. When there is no more food than the fruit tree needs it is absurd to expect a full crop of grass also. Such treatment is bad cultivation. But if one is situated so that he can top-dress the ground with fertilizing material occasionally, that treatment is the very best cultivation for fruit trees, because of the coolness and shade which the grass gives the roots of the fruit trees. The constant mowing plan, good as it is, and excellent as would be the crops, might still not be a profitable mode for a market man. It is one of those questions which only actual figures could decide.

THE CLUB-ROOT IN CABBAGE AND TURNIPS.—Mr. George Henderson, Rye, New York, writes that this disease does not occur when cabbage plants are set out on ground where onions have grown the year before. An emulsion of kerosene with common soap and water he also finds a sure protection from the cabbage worm. This was also Professor Riley's statement before the American Pomological Society, who also exhibited a machine for discharging the spray.

THE CODLING MOTH IN NEVADA.—A lady writing from Washoe Valley, Nev., says the wormy apple has come into existence there. In localities where the insect has not got much of a foothold, we should think care in collecting the wormy apples before the insects get out to undergo transformation would keep them down. It is just one of those cases when a "stitch in time saves nine."

FORESTRY.

COMMUNICATIONS.

CHESTNUT ON LIMESTONE.

BY J. HUNTER.

I have just been reading an article in the GARDENERS' MONTHLY, written by Prof. Buckhout, which has rather surprised me a little. It relates to the choice of soil by trees, and states that chestnuts will not grow on limestone land. There seems to be no choice in this region (Berkshire county) for I see them growing in almost every situation, and in all the different kinds of soil that are capable of growing other trees—limestone, marble, clay, gravelly or loamy. I am glad this question has come up as it is an interesting one to study, and if it would be of any interest to you I will make some inquiries of my neighbors and get their opinions on this matter. I remember, when a boy, I lived in New London, Chester county, Pa., and the farmers used to haul chestnut rails several miles to a limestone region and exchanged them for limestone, and burned it in their own kilns. May it not be possible that there is something else wrong with the soil in Pennsylvania and not limestone the fault? *Glendale, Mass.*

CHESTNUT TREES IN LIMESTONE SOILS.

BY H. F. HILLENMEYER.

I think your correspondent in a recent issue is in error in the assumption that beech and chestnut thrive only on soils of other than limestone formation. The fertility and recuperative capacity of the famed blue-grass region of Kentucky is due to the disintegration of its limestone rocks, which are of unknown depth. The chestnut on our place grows finely, and I think in nursery row we have trees that have grown ten feet high in four years. This tree is not found native to the soil of our county, but there are a score or more of as fine trees as you would wish to see in the suburbs of Lexington. They are both healthy and productive. There are a few beech trees of native growth in this county, and in the adjoining county of Scott there are some magnificent beech woodlands. The soil of Scott county, like that of our own, is purely of limestone formation. *Lexington, Ky.*

CHESTNUT AND BEECH ON LIMESTONE.

BY THOMAS T. NEWBY.

The discussion of the "Choice of soil by trees" is of interest to me, and as facts are desired, I would state that here in Rush county, Ind., the soil is strong limestone, and the water is "hard." The valley, or "bottom" land, along Blue river, contains a large amount of sand and gravel mixed with the soil, and frequently large beds of it lie under the soil and also in the bluffs, and this sand and gravel is largely limestone. The upland is heavy clay with limestone in the form of pebbles in it. Much of the upland is swampy, quite wet, and such soil is black, principally vegetable mould. The beech tree flourishes everywhere except on the very wet land; there we find principally water elm, black ash, soft maple and the large bur oak. In many places there are more beech trees than of any other variety; frequently over two feet in diameter and nearly one hundred feet high. The chestnut is not a native here. However, I have a tree some fifteen years old, five inches in diameter and eighteen feet high, with a well branched head. Many shoots on it grew ten to twelve inches last year, and had nice healthful foliage. It had quite a show of fruit, but all dropped prematurely. But I know of older trees not far away that fruit abundantly. *Carthage, Ind.*

[The fact that this chestnut tree does not bear fruit is interesting, from the fact that some botanists believe the chestnut tree rarely makes use of its own pollen, and must have pollen from another tree in order to bear at all. It is a fact, that the great mass of white blossoms which give such beauty to a mass of chestnut trees, are male flowers, and that these fall—certainly as a general thing—before the female flowers open. When the female flowers do open they form a few more male flowers at the apex of spike which bears the female flowers at the base. Now the fertilization must take place through the agency of this second crop of male flowers, or else from the first crop of male flowers of some other tree, which have had their early opening retarded. Are there several of these older trees together, or are they isolated and yet fruitful?—Ed. G. M.]

FORESTRY IN SCOTLAND.

BY A. VEITCH.

Were all the facts known regarding the raising of forest trees in Scotland, it would appear that in no country is the subject better understood, and nowhere is greater interest manifested in all that appertains to skillful management than is to be found amongst the owners of land in that country. The Forestry Exhibition which is to be held in Edinburgh during the coming season is not only a manifestation of the spirit that is abroad, but a pledge that success will crown that display of national talent and industry.

And yet, in the face of all this, we have an account of how trees are planted there, by a correspondent of a New York paper, and quoted in the GARDENERS' MONTHLY for January, which would lead any one not knowing the facts to suppose that the people of that country had not emerged from the darkness of the middle ages. It is therein stated that the seed is sown upon the site of the plantation to be, and trodden into the ground by sheep penned upon the spot. This method is new to me, and may have its advantages, but we question if it is practiced to any great extent in any locality, as it certainly is not at all in those parts where forestry is well understood. However this may be, in the light of the quotation referred to forestry is placed in as unfavorable a light there as agriculture would be in Wales were the fact made known that in some parts of that principality women carry manure on their heads in baskets up the steep slopes of the mountains to little patches of cultivated ground inaccesible to horse and wagon. Neither would it be creditable to American farmers were outsiders to receive their only impressions regarding their calling by the way in which it is conducted in many parts of Connecticut. From which we learn, that false conclusions are apt to be reached by regarding the way in which work is performed in isolated cases as true in every other case.

Having had some experience in tree-culture in Scotland I may here state that the method most in repute there in starting mixed plantations is, when the land is in suitable condition as regards moisture to dig pits for the hard wood trees about fourteen or sixteen inches in diameter and about ten feet apart, and the spaces filled with the larch or other trees. When the ground will admit, the latter are planted by merely cutting the sod crossways and replacing it when the trees are in position, and if impracticable so to do, pits are dug about twelve inches in diameter, which, but as a matter of economy, is the better way in every case. When the trees are planted they will stand three or four feet apart and no special care is necessary for a year or two except to prevent the encroachment of grass and rank weeds. The after management is, to see that the trees do not get overcrowded. To prevent this, in the first instance, any branches which encroach upon the permanent crop should be lopped off; and by-and-bye thinning out the nurses in such a way as to prevent unnecessary exposure to those that remain. In the course of a few years—say eight or ten—these thinnings can be turned to good account in the rural districts and many of them are sold for coal stoops. In the case of the larch, when it attains to four inches in diameter and upwards, it is much sought after for fencing and other economical purposes. The bark also, when taken off in four-feet lengths and dried, is readily sold for the tannin it contains. In days gone by graver errors were committed in pruning than in planting, and chiefly because in many instances the work was entrusted to men who knew not enough of "How Plants Grow" to be intelligibly guided in the operation. So obvious was this that Dr. Lindley and others took the ground that the pruning of forest trees should be utterly abandoned. But such work improperly performed affords no reason why good practice may not have its advantages. And the questions for settlement are: Whether is it better to allow nature to take its course or to subject trees to a judicious course of pruning during the first years of their growth; or, by which method can the greatest amount of useful timber be obtained after trees reach a serviceable age? It can scarcely be doubted that the unpruned trees would outweigh the others in the gross, but the latter would have more measurable timber in the clear, and consequently would be of greater commercial value. If this be true, no objection of weight can be brought against shortening such branches as compete with the leader, provided it is done while they are small; but in no case should they be cut to the stem until it is ten times their thickness, when it might be done without appreciably retarding growth, or in the future proving injurious to the timber. By so doing, young hard wood trees can be so directed in their growth that when reaching maturity they would not only be individually valuable, but a greater number can be grown on a given area than of those with a wider spread of branches.

New Haven, Conn.

EDITORIAL NOTES.

THE VALUE OF TIMBER PLANTING.—Mr. Isaac Collins communicates the following to the *Hayward Journal:*

"The very large yield of fuel material from twenty acres of Stratton's Eucalyptus grove in Castro Valley may be of some use to Californians in general, and from the wide dissemination of your paper that end can be attained. The grove was planted in the winter of 1869–'70. The twenty acres cultivated to the above was entirely cleared of the timber in the year 1880. The quantity and value of the fuel obtained therefrom were as follows:

From time of planting to 1875	12	cords
During year 1876	149	"
And 700 telegraph poles.		
1877	100	"
1880	1000	"
And cords of roots	100*	
Total number of cords		1,361
At $6 per cord	$8,166	
700 telegraph poles	525	
150* of cords roots at $4 per cord	600	
Grand total for 20 acres		$9,491

"*I communicated the above to the State Horticultural Society, but since that time, in speaking on the subject to one of the contractors, he amended his first statement to me to 250 cords of roots and also $200, for piling for creek embankments."

It would be well worth while to know what could be made off the same ground by other crops in the same time. These figures give $50 per acre per year; but, as the money is not handled till ten years, compound interest will have to be charged against the proceeds, and in favor of some annual crops. On the other hand, there is much labor attendant on annual crops, which a timber plantation is free from. At any rate, when we can get careful statements like these, the chance to make comparisons should not be lost, as it is just what is needed to induce people to go into timber culture, if there is really any money in it.

THE CATALPA IN DAKOTA.—A correspondent believes that the few catalpas the editor saw in Dakota, growing from the previous spring's planting, could not possibly survive such a winter as we have experienced, and fears it will not be safe to recommend it as a timber tree in that State.

FOREST DESTRUCTION.—America suffers from forest fires, but other countries have their troubles. The past autumn 10,000 Norway spruces are said to have been destroyed by a hurricane on the Kinmount estate in Scotland.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

ABOUT THE ARIZONA POTATOES.

BY PROF. J. G. LEMMON.

Whew! A new potato from South America! Identical, perhaps, with one which turns up among the tubers we brought from Arizona. Prof. E. G. Mumford writes from Portlandville, N. Y., November 26th, 1883:

"I am happy to be able to make a favorable report concerning your Arizona potatoes. The tubers you sent me last season seem to be all of one sort, except one, which differs very much from either of the species you describe in your California Academy article. The seed-balls you sent seem to be of this—shall I call it a new species? I kept the tubers separate as you suggested, and still have the product labeled as you named them. Among the four small tubers you sent unnamed, was one that was very round with barely visible eyes, and this is the one that is so different from the described species. This tuber was the first to sprout, and was planted in a pot on March 1st. It grew rapidly,.and June 1st was planted out in the ground, where it bloomed and bore plenty of seed-balls. I intended to save specimens of flowers and stems for you, but I was obliged to be away from home in July. On my return, later, the tops were dead. The plants were upright, about one foot high, and curiously enough, they sent out runners from as high as four or five inches up the stems, down into the earth. The runners start from a leaf axil like a branch, except having no leaves. They are like wires with a needle-like point; this bending down penetrates the earth. The leaves are 'tripinnate' (ternate, he must mean) both from the product of the tuber and of the seed-balls sent. Flowers small, less than a half-inch long; pale reddish-purple, seldom more than three in an umbel, only two of which perfect fruit; the latter roundish-ob-

long, green with brownish-purple tints toward the base, spotted with white. As the fruit ripens it fades to an olive green, becomes soft and endowed with a decidedly agreeable odor, like that of the violet. Tubers on long stems, perfectly round, skin smooth, white, not soon changing color when exposed to light, and they are fully double the size of the one planted."

The tubers and seed-balls sent to Mr. Mumford were found near the top of one of the highest peaks of the Huachuca mountains, Arizona, at an altitude of 9,000 feet, and were on the forested north side. The botanical specimens collected differed widely from any descriptions I could find, but were essentially the same as this so carefully given above, and in my Academy article it was called "the third species unnamed; perhaps a new species" (page 15). I am sorry now that I did not follow out my first inclination and name it Solanum Arizonicum. Still, it was better, perhaps, to wait for more data.

An accident to the boxes of tubers, in transit from Arizona to Oakland, mixed their contents and accounts for the confusion of names referred to by Mr. Mumford. Time will tell whether this species is the same as the one from the La Plata; if not then we have another curious new form. There is likely to be considerable interest manifested the coming season concerning the introduction of these native Arizona potatoes. You, having the *Revue Horticole*, can determine whether the La Plata species is identical with the above. Please report.

Herbarium, 1205 Franklin St., Oakland, Cal.

[As far as we can judge from this description, the S. Ohrondi of the *Revue Horticole* is another thing.—Ed. G. M.]

PEAR BLIGHT AND PEACH YELLOWS STUDIED IN A REMEDIAL WAY UPON A BACTERIAL BASIS.

BY WM. CREED.

From the outline given in my previous paper on Bacteria it will not be necessary to recapitulate, beyond reminding your readers that it is a well-established fact that Bacteria pervades the universe; and the term Bacteria, be it also remembered, covers organisms of very diverse kinds, and being imperceptible to the eye, except by microscopical aid, we are too apt to doubt their existence or give credence to their destructive contamination to the vegetable and animal creation. In the direction of proof of the activity of Bacterial life and its apparently unlimited range and prevalence, Professor Tyndall has been one of the most energetic, painstaking and successful in his searching investigations, and reaching from Kew Gardens to the Alps 7000 feet above the sea's level, and in hundreds of other locations, under all conditions and circumstances, and finding Bacterial germs everywhere from minimum to maximum. More recently the reports of Professor Freudenreich of Berne, and Dr. Miguel, chief of the Montsouris Observatory, give some facts also worthy of mention in this particular, to the effect that Bacteria are always present in mountain air as well as upon the earth's surface. These investigators tell us that the air upon a Swiss lake contains Bacteria in proportion of .85 to 500 cubic meters, while the land near the lake contains three times this estimated number. The air of Montsouris, near Paris, is said to contain 330 times more. Some of these investigations reached from the surface of the lake to 4000 meters above the level of the sea.

Professor Tyndall's experiments lay more particularly in infusions of hay, melon, cucumber, turnip, beet and other vegetables; also in fish, flesh and fowl, in the endeavor to hermetically seal them to the exclusion of the particles upon which the germs float in the air. These infusions amounted in two years to 10,000 and were all previously sterilized by various degrees of low and excessive heat by boiling them for longer or shorter periods; but he could at will influence these infusions by simply waving a wisp of hay in their vicinity and exposing them for a short time to the floating hay dust. Bacterial life always followed this practical test. Hay has long been known as a prolific source of Bacterial germs.

Pasteur, the great French chemist, also mentions the fact that the grape is sealed by its own skin against contamination from without, and at the time of the vintage microscopical particles are observed to adhere to the surface of this important fruit and also to the twigs that support it, and these particles being brushed into the pure inert juice of the grape, in 48 hours our familiar Torula is found budding and sprouting. The ferment of the grape clings like a parasite to the surface of the grape and undoubtedly this may be extended to the cherry, plum, peach and other fruits, and the remedy under this theory is apparent. But, to come more particularly to the point we have in view, we ask, what can be done to ward off this ever-present germinal influence and to intercept the development of the mature Bacteria, so that our pear and peach trees may not meet with premature death on their account? Is there any remedy or the prospect of a forthcoming one that will meet the

case? Sir John Lubbock, before the British Association (Science) Jubilee at York in 1881, in review of the Bacterian question, assures us that carbolic acid is the remedy, but mentioned no special formula or special proportions of acid and water. Dr. Newman, however, states that a solution of one per cent is sufficient to destroy Bacteria and that a solution of one to five hundred destroys vegetable mould, a weak solution being also destructive to ascarides, earthworms, caterpillars, moths, ants and other insects. Here then seems to be our "clew." Shall we apply a weak spray direct to the tree or can we so permeate the air with the odor of carbolic acid and thus sterilize the activity of our foes? Let experimenters try their hand at the query. What does Professor Lister do when he has a compound fracture on hand to baffle the germs of Bacteria and save his patient from possible death? He first sallies forth a weak spray of carbolic acid solution direct upon the fracture. Next follows a four per cent solution intermixed with heated raw linseed oil and this is followed by antiseptic bandages, and we are assured that 99 cases out of 100 become convalescent. The success in this treatment lays in excluding the germs from the fracture by this antiseptic treatment. I have also the authority of the naturalist Cohn and others that all Bactericidal media are antiseptic and disinfecting.

Now we reach the raw linseed oil treatment and will call it the hermetically sealing preventive by protecting the bark against the depredations of Bacteria. In a communication of mine to the *Fruit Recorder* of November, 1877, I queried the benefit that could be gained by the application of the aforesaid oil as a cure while the tree was smitten with disease, but added that it would undoubtedly form a film wherever applied and perhaps be the means of protection against fungi. Now in the light of the Bacterian theory it would appear more than probable that it is this very film if formed upon the tree while in health that will remedy the evil. Most assuredly such trees that I have applied this oil to while in vigorous health are still to all appearances looking healthy, bright and encouraging. This oil naturally suggests the application of other oils and I am now trying and testing slushing oil with apparently good results. This is a dark colored heavy petroleum production and quite impervious to the penetration of air and is of a less drying nature than raw linseed oil. Vaseline, another petroleum product, seems to be of a similar nature but I fear too expensive.

With respect to peach yellows the case is somewhat different to pear blight. In this case I would suggest the syringing of a weak spray of carbolic acid solution upon the trees, or so place the carbolic acid in the proximity of the trees that the atmosphere may be impregnated with its disinfecting quality. This should be done early enough to forestall the dreaded Bacteria and continued at intervals until the temperature ceases to have generative influence. 90° and 95° of heat are said to be the most favorable to their multiplicity. Not one tree need be sacrificed in testing the remedies proposed, if the text of this paper is properly realized by the experimenter. In the application of oil or other substance to the pear tree the proper time would naturally be on some fair day in spring previous to the swelling of the buds. I may finally offer a few suggestions concerning insect life as partially touching the points now under consideration.

59 Gregory St., Rochester, N. Y.

SHORE ICE AS A GEOLOGICAL AGENT.

BY PROF. GEO. G. GROFF.

A young man from New Jersey has recently called my attention to the fact that shore ice (and possibly, also, ground ice) has acted in transporting the oyster. He told me that he has known considerable damage done to the cultivated beds in this way.

Lewisburg, Pa.

EDITORIAL NOTES.

THE POTATO FUNGUS AND ITS ALLIES.—Prof. Farlow continues his useful labors among fungi destructive to vegetation. He has contributed to the *Botanical Gazette* a list of all the fungi allied to the Perenospora infestans, the well-known source of the potato rot, that he has found in the United States. There are thirty-five in all; of these, one, P. Viticola, is found on the wild and cultivated grapes east of the Rocky mountains, as well as in Europe and Algiers. The others are chiefly found on wild plants, and have not yet assayed to plague the cultivator to any material extent.

WILBRANDIA DRASTICA.—When the young student of natural history sees a cucumber or a cantaloupe, he gets a fair idea of what the natural order of cucurbitaceæ is like. But there are cases where general aspect would fail to give a clue, and only a correct diagnosis of essential character would be a safe guide. We give herewith a sketch of a curious member of this family, introduced to our notice by Messrs. Haage & Schmidt, of Er-

furt, who give the following interesting account of it. It is one-half the natural size: "Charming and interesting climbing Cucurbitacea from Brazil growing twelve to fifteen feet in height. Its branching habit and thickly set abundant foliage make it specially well adapted for covering arbors and

Wilbrandia drastica, Mart.
(Formerly Rhyncocarpa glomerata.)

fences or for garnishing festoons. The whitish flowers, as is mostly the case in this tribe of plants, are not very conspicuous, but the deeply cut five-lobed leaves together with the numerous hazelnut-like fruits appearing in dense clusters render this plant one of the most attractive climbers for out-door culture. To judge by the tuberous-like root it may be treated as a perennial, but it succeeds well in any warm border as an annual."

MIGRATIONS OF BIRDS.—The Ornithologists' Union, Locust Grove, New York, intend to get observers over the whole United States, from Alaska to Florida, in order to discover all that is known about the migration of American birds. Circulars can be had of C. Hart Merriam, as above. This is a good chance for ornithologists everywhere to make themselves useful.

APPARENT WASTE IN NATURE.—In his Montreal address Mr. Meehan says: "We discover nothing in the behavior of plants to indicate that they are actuated by individual good further than may be necessary to enable them to fall in with nature's great aim of preparing for the future. Millions of seeds are produced for every one that grows; millions grow for every one that lives long enough to flower; millions of flowers open for every one that yields seeds, and millions on millions of grains of pollen are produced for every one grain that is of service in fertilization. But these surplus seeds, surplus plants, surplus pollen are useful, not to the parents which bore them, not in any way to themselves, but as sacrifices to posterity. They serve as food. They die that something else may live. They all work in with nature's grand aim of developing something for the future. At the present time the eyes of science are turned to the past. We compare the dim view with that which is about us, and we perceive that all things have worked together for the good of the whole. We see that nothing has lived in vain. We know that in the general economy of nature there is no waste anywhere."—*Journal of Horticulture.*

FAVORABLE CONDITIONS FOR THE MIGRATION OF WEEDS.—It has recently been noted by a correspondent of the *Bulletin of the Torrey Botanical Club* that a large proportion of introduced or common weeds are distasteful to cattle, and that their wide distribution through waste ground is chiefly owing to this fact, rather than to any special adaptation to climatal conditions over the species they displace. Not being agreeable to cattle, they mature seeds, and in this way have special advantages not accorded to those which are continually cropped.—*Independent.*

CHANGE OF SEX IN STRAWBERRY PLANTS.—At a recent meeting of the Massachusetts Horticultural Society Mr. J. B. Moore reported that the Wilder strawberry inherits from the Hovey the tendency to produce sterile plants. He went through his bed with a large knife and cut out all the sterile plants. If Mr. Moore had lived a quarter of a century ago and had made the suggestion that a variety of strawberry could change its sex, his neighbor Mr. Hovey might have been found whetting his scalping-knife, or grinding his tomahawk with grim satisfaction at the approaching struggle.

SCRAPS AND QUERIES.

HONEYSUCKLE APPLE.—If our correspondent had said "Wood Honeysuckle," instead of merely "Honeysuckle," we should not have had the common climbing honeysuckle in mind when we gave the reply. But we are on the whole pleased that we had the wrong plant in view as it has brought out a large number of correspondents, with a variety of information of great value. We select

from among them all the following, and give our best thanks to the correspondents whose favors it does not seem necessary to use:

Mr. T. S. Gold, of West Cornwall, Conn., says: 'The 'Honeysuckle apple' also called 'May apple' is produced by Azalea nudiflora. It is a kind of enlargement of the calyx; appears while the plant is in blossom or soon after and soon disappears. It is a cluster of lobules like the old fashioned tomato. The color is pale green and it has a sweetish and acid taste, cool and refreshing in a hot day. They are eaten freely by the children and are used for pickling. Gray gives 'swamps' as the habitat, yet here it grows mostly in dry land, natural to the chestnut. It is perhaps our finest native shrub; as its abundant bloom, varied shades of pink and purple, lights up some forest glade, while the air is laden with its refreshing perfume, one of the chief elements in the aroma of spring made up from the bursting leaf and flower buds of shrub and tree."

Mr. E. S. Miller, Wading River, N. Y., says: "The shrub Jonathan Primrose refers to and desires the botanical name of is, Azalea nudiflora L. It is known on Long Island by the common name of 'Wild Honeysuckle,' (another case of common names misleading). Hence 'Honeysuckle apple' and 'Swamp apple' as they are called here. I have taken for granted that they were an excrescence formed by the sting of an insect. I cannot agree with Jonathan Primrose in that 'they are sweet and delicious.'"

"J. R. S.," Rahway N. J., communicates the following: "The botanical name of the shrub that produces the fruit known throughout New England as 'Honeysuckle apple' is Azalea nudiflora. It is not a fruit but a sort of fruity excrescence. Here it is called Honeysuckle apple and is eagerly sought for by children, though but a poor watery tasteless thing. Among the Germans of Pennsylvania it is called Pfingsten apple, probably because of its ripening at Whitsuntide. I have never seen this excrescence on any other variety of Azalea although we have growing here A. viscosa glauca and nitida."

And Dr. W. R. Gerard, New York, adds: "Page 55 of GARDENERS' MONTHLY, the 'Honeysuckle apple' (so-called) is a fungus, Exobasidium Vaccinii, Wor., and the shrub upon which it is found is Azalea viscosa."

Mr. Warren H. Manning, Reading, Mass., in his communication remarks that it is often called "Swamp apple" in that section; and Mr. Bassett, of Hammonton, N. J., gives "May apple."

VARIETIES OF MAHOGANY.—"N. C. B.," West Philadelphia, asks: "Are the Mahoganies, Sweitenia, popularly known as Cuban, San Domingo, Brazilian, Tabasco, and Honduras, different species or local names of the same species? I have seen Baywood, Persea Caroliniensis, called Mexican mahogany in trade journals and sometimes confounded with California Redwood.

[So far as we know, all the names in the first paragraph, belonged to the true mahogany, Sweitenia Mahogani. The name of Mahogany is however given by some people to many different trees. In the Rocky Mountains, Cercocarpus parvifolius is "Mountain Mahogany," and when a number of Philadelphians years ago assured us the "Mahogany tree" was growing in Washington Square, the writer was taken to a tree of the English alder, Alnus glutinosa, in proof thereof.

Persea Caroliniensis, is a plant allied to the sassafras, and has fine rose-colored wood called Rose-bay and Bay-wood, but we never knew before that it was known as Mexican Mahogany. Our correspondent is well situated for keeping track of these trade names for fancy woods; and we should be much obliged by any novelties in nomenclature which he may come across.

THE SEASON IN ENGLAND.—A correspondent writing from Kent, England, under date of January 21st, says: "Our winter is very different from yours. We have had no frost yet. Mignonette and stocks are still in bloom. Wallflowers, polyanthus and wild primrose have been blooming since last October. Snowdrops and crocus of several kinds are in flower, also hepaticas and daisies. Saxifraga Burseriana and Anemone blanda opened their first flowers to-day. Narcissus minor is in bud, and I see that Amaryllis Belladonna under a warm wall is pushing up a flower spike.. The elder and honeysuckle are leafing, so also is Acer Ginnala."

POISON KALMIA.—"Inquirer" wants to know why, in spite of well known and recorded facts, we still insist that the Kalmia is not poisonous. It is singular that what we have written about this plant should provoke so much discussion; but it shows a wide spread interest in the question. We have not said it is not poisonous, but that the "recorded facts" do not prove it. What are these recorded facts? It is said in 1790 a number of persons got sick in Philadelphia. Some one "remembered" that the sick people had ate pheasants which were abundantly offered in

market that winter, and somebody "remembered" that in cleaning the pheasants the leaves of Kalmia were found in the stomach. On the strength of this the Mayor of Philadelphia issued a proclamation warning the people not to eat pheasants because the flesh of the bird had become poisoned by Kalmia. But it is not the first time a public official Dogberried himself. If he had thought, he might have asked why the poison did not kill the bird as well as the people who ate the bird.

Then as to an ally of the Kalmia, the Rhododendron. Haller in his *Stirpium Historium* tells of a hare that was fed on Rhododendron leaves, and after a while it was killed and that it "proved fatal" to those who fed on it. He does not tell how many became immortal in consequence of eating of this one hare, but it must have been "awful powerful," as Sairy Gamp would say, to kill in these small pieces. Most likely the wine with which the hare was washed down had something to do with the disaster; at any rate, the wonder to us is, that it did not first kill the hare before it killed the people who ate him. It is also well known that in winter elk and deer in Pennsylvania eat the leaves of Kalmia as freely as sheep eat grass in summer, and there can possibly be no reason why, if it will not kill pheasants, hares, and deer, it should be such deadly poison to a sheep. That sheep have died after eating Kalmia may be true enough; but as chemists can find no trace of poison in Kalmia, why may it not be as likely to come from "getting blown," as when a cow gets into a clover patch, as from the plant being poison? This is all we have said, or have reason to say.

ARTEMISIA STELLERIANA.—Mr. David Gindra, Poughkeepsie, N, Y., sends the following correction, which we are glad to have: "I am sure the GARDENERS' MONTHLY does not want to make a mistake in the nomenclature of plants, but there is one on page 6, January number (Mosaic flowerbed), and the same is in most every catalogue of the florists'. Artemisia Stelleriana is the plant, and not A. Stellaris. It is named after Mr. Steller (by Besser). Steller found the plant in Kamtschatka, and Mr. Regel figured it in the 'Garten Flora,' 1866."

THE SNOW PLANT OF THE SIERRAS.—A lady living in Washoe Valley, Nevada, who is an excellent observer of nature and has communicated to the Editor many original observations, has been watching the Sarcodes sanguinea for some years, and last year found it growing far away—thirty or forty feet—from any tree, and believes it can be scarcely a parasite on any root. This accords with the Editor's experience in California. He, Dr. Schaffer, of Philadelphia, and Mr. John M. Hutchings, of Yosemite, dug some up carefully and found they certainly are not parasites. It is most likely they start like some fungi or half dead matter as the monotropa does.

THE WHITE SPRUCE IN COLORADO.—We have some correspondence about the existence of the true white spruce—Abies nigra we suppose to be the one intended—in Colorado. One correspondent would like to know if Mr. Douglas or others saw the cones and are sure of the species? Mr. Douglas, is a nurseryman of large experience, and only on the fact that even botanists often mistake species of coniferæ, we should say he must be right.

FREEZING OF SAP IN TREES.—A correspondent inquires whether the sap freezes in winter in trees or not. We have been so often over this topic before, that it seems superfluous to go over again. But there are so many new readers of the magazine, and so much interest evidenced in the subject that it may do no harm to allude to it again. Experiments have shown that instead of the branches of trees expanding in winter time, as they would do if the sap froze, they actually contract. If we break a twig in the sharp freezing weather we find it crack "short off," just as it would when half dry in summer time. If examined closely the bark will actually have the appearance of being dried, showing wrinkles. Now if this same twig be taken into a warm room it soon changes its appearance, the bark becomes smooth, and the twig will bend short without breaking, and thus we conclude that the sap instead of having froze and expanded, had actually contracted, and we have the lesson that the sap does not freeze. The whole subject is curious, and it is singular that so much misapprehension exists, in view of the fact that a continual flow of liquid through the plant all winter long is a necessary condition of its existence. That there is a great amount of evaporation going on, we know, and that this evaporation increases with the lowness of the temperature. That liquid is turned into ice does not alter the fact. There is evaporation from ice as well as from water. This evaporation must be supplied, and is supplied during the winter by what is known as "root pressure." In short, the tree would die from sheer evaporation if the circulation was suspended by its liquids freezing.

LITERATURE. TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

SOME PERSIAN FRUITS.

BY W. G.

I have copied the enclosed notice of Persian fruits from a recent work on Persia,* by Mr. C. J. Wills, an English surgeon who spent some time in that country and who has given an agreeable and instructive account of his sojourn. It occurs to me that you may like the extracts for the GARDENERS' MONTHLY. Every one knows that many of our best fruits came originally from the East, but the fruits which Mr. Wills mentions have not to the best of my knowledge found their way to this country. We have a minister at the Persian court but I am at a loss to know what he has to do. Why should he not collect roots, cuttings and seeds and send them to the Agricultural Bureau at Washington for distribution?

Page 310: Persia has particularly fine quinces and pomegranates. The latter I have seen of four pounds weight. The Ispahan quinces are sent all over the country, packed in cotton as presents. They give forth a very strong and agreeable perfume which is much delighted in by the natives; and they are passed from hand to hand and savored like a sweet-scented flower. The Attar-beg pomegranates have no perceptible seed and their flavor is very delicious. Their variety is great—sweet, sour, or sour-sweet; they vary, too, from white to almost black in the pulp.

Page 168: These latter (apricots) grow in great perfection in Ispahan; there are seven known kinds, six of which are sweet, and one bitter. The most valued variety is the shukken-para; it is excessively sweet and cloying. All grow to a great size and so great is the plenty that the fruit in an ordinary season is sold for two pence-farthing the fourteen pounds or maund. The orchards where the apricot is grown are generally sown with clover; the trees are never thinned, but notwithstanding this, the finest apricots in the world are certainly produced in Ispahan.

Great quantities of dried fruit are exported from Ispahan, which is celebrated for its "keiri," or dried apricots; these are merely the fallen fruit which is either too much bruised for sale or has not found a market. They are simply placed in the sun, and become in a week dry, hard and semi-transparent, thus forming a very portable food; the stones are of course removed and the fruit becomes as hard as bone; an hour's soaking renders them fit to eat, or when stewed they are delicious, being so very sweet as to require no added sugar.

Small melons, called "gerwak" and "tellabi" now (May) make their appearance; these, though far superior to anything produced in England, are not much thought of. The big brown melon or "karbiza" of Gourg-ab which will keep good a year and attains an enormous size, some being seventy and eighty pounds in weight, is more highly prized; the flesh is white and tastes like a Jersey pear. They grow on a soft soil, are heavily manured with pigeon dung and freely irrigated until the plant flowers. Many choice varieties of melon abound, as the "Shah passand" or king's favorite, and others. The "Thridiwana" or water melons are of three kinds, the red fleshed, the yellow fleshed and the white fleshed; these run from three to twenty-eight pounds in weight as an ordinary size; there are long and round descriptions. The skin varies from pale green to almost black with green blotches; the latter are the best.

Cambridge, Mass.

* "The Land of the Lion and the Sun," by C. J. Wills.

EXAGGERATING NEW THINGS.

BY ECCLESIASTICUS.

I have several times lately had occasion to recall and pass round a reminiscence of some twenty or more years back, which has been again recalled by your remarks upon page 48 of the GARDENERS' MONTHLY for February, under the caption "Praising New Fruits." In those days it was the habit of *Harpers' Monthly* to give with each number a cartoon, hitting at the foibles and humors of the times; and I recall one in which was represented one of those feminine characters called hucksters, sitting in the market surrounded by her wares, among which were some mammoth pumpkins; when, a cockney coming along remarks, "you don't call them large happles, do you? we 'ave

bigger than them in hold Hengland." "Apples!" replies my lady, "them aint apples, them's huckelberries." At the present rapid rate of "development" in new fruits, we shall at no very distant day be in some doubt as to whether a pumpkin, an apple, or a huckelberry is the subject of representation.

EDITORIAL NOTES.

EDITORIAL LETTER FROM HARRISBURG.—Summer travel has its advocates and friends, but to our mind few experiences are more enjoyable than a long ride on a genuine winter's day. It was a great pleasure to meet with friends at the recent meeting of the State Horticultural Society, and very profitable to listen to what these friends had to say; but the hundred mile ride from Philadelphia with the outside world draped in snow was equally delectable, and furnished a picture one cannot soon forget. In company with the genial Secretary Harrison, our course was along the Schuylkill river and through Reading and Lebanon, a far more beautiful route than that over which the Pennsylvania road passes to the same spot, but less popular, apparently, probably from the superior appointments of its rival line. The ice gorges in the Schuylkill, some of them many feet high, gave a unique picturesqueness to the scenery, while the numerous buildings along the lofty and rugged river banks, with the many tinted colors of the buildings and public works of various kinds, all resting in their snowy nests, offered a specimen of beauty few summer scenes could rival. But possibly the happiest views of all were the numerous towns along the portion from Reading to Harrisburg, which, huge oases in the great desert of snow, brought out prominently characters not so apparent when green fields and flowers everywhere surrounded them. These towns of from 2,000 to perhaps 10,000 inhabitants were settled chiefly by Germans, and they have kept to many of their peculiarities even to this day. Most of the houses are of brick or stone, and have a heavy solid look as if they were destined to last for a thousand years. The tindery frame structures so common in towns of distinctively modern American origin, and which seem waiting impatiently for the tornado to blow them to atoms, are rarely seen among them, and the curious attempts at art in building which so many modern houses present, and which tell us rather of the desire of the owners to do something, than of their good taste in the effort, are almost wholly wanting. Good, comfortable, roomy houses they were in the past, and so are those which are still going up in their company, and this is all; and then the grand and well constructed barns, running right in among the prosperous towns, and uniting the town and country; better specimens of the *rus in urbe* than those of which any Roman poet ever wrote. Those wonderful German Pennsylvania barns! But then the wise man is merciful to his beast, and in other respects these old fellows show us in how many ways they were wise. The fruit trees, for instance, are simply wonderful. It is impossible to note a single farm-house that has not its ten acres or so of apple trees, with trunks like timber trees, wholly surrounding the barn as a general thing, and often taking in even the dwelling houses, so that one may in many cases gather from the bed-room windows the dewy fruit fresh from the tree and take a frugal breakfast on his bed-room floor, if so minded he were. And the small city gardens and yards all were crowded with apples, pears, cherries, grapes or smaller fruits, till there seemed no room for anything else. No doubt there were flower pots and flower tubs and boxes in cellars stowed away, for your true German wife or damsel could not live without her old-fashioned garden flowers. But at this season the whole town seemed like a huge orchard with the dwelling houses merely as accessories thrown in. One of the most remarkable features of this old-fashioned ride, was the absence of all evidences of the tree pedlar; and we wondered whether it could be possible that there was a spot on God's earth where these persevering missionaries of the true and the beautiful had so far forgotten to favor with their unselfish presence. Or was it that these simple children of nature, who yet held fast to the land and the habits of their forefathers, had yet a reserve force of dogs and gunpowder sufficient to scare these truly good and loving men away? But there was the fact. The thousands of trees set out and growing, and still being set to grow, were evidently mostly home grown, and there was no evidence of any new introductions to any extent among them all. Not a "Silver maple," nor a "Carolina poplar," nor a "Norway spruce," or "Balsam fir" or "Arborvitæ," which usually form the chief stock in trade of the great Pilgrim fathers of the horticultural creed, could be seen along the route. We should not doubt there are some, but they are lost in the immense sea of old-fashioned fruit trees which everywhere prevailed. The absence of evergreens was particularly noticed in what little gardening these antiquated people

essayed to do. Even "gentlemen" and "ladies" have hardly ventured yet among them, if we may judge by some of the railroad stations, which told us that here was the "womens'" waiting rooms, and there the waiting rooms of the "men." And yet it was a luxury to see so much of this old-time, sound, substantial rural simplicity. Though famous for their love of wine and beer, it was remarkable how small a portion of these large town buildings were devoted to the "saloon;" and if there were few of the modern fashionable residences among them all, so neither did there seem to be huddled quarters for the very poor. Time and time again as the writer passed every few miles to fresh and populous towns did the thought occur, how pleasant it would be to spend a whole summer season in going through the whole country from town to town leisurely, and take these honest, simple-hearted, but old-fashioned people, by the hand. Their beautiful country showed they were not a grasping set. The forests had not all been cut down in order to get the last bushel of corn or the last dollar for every stick of cord-wood that could be scraped together. Forests of white oak which would certainly realize large sums if put in the market, were yet standing on parts of well cultivated farms in frequent instances, and along the hillsides chestnuts—and on limestone too—were in great abundance. We should not hesitate to say that in this very old settled part of our country, and in the midst of one of the richest agricultural districts of Pennsylvania, one-fourth of the area is still bearing forest trees, and there is no scarcity of fencing material. The old-time worm fence, with its wealth of wood, still prevails. The barbed wire man had made a few sales, but the live hedge man was apparently unknown. But it is nearing midnight; I have already given an hour's address in the Senate Chamber this evening, and only the comforts of the steam-heater in my elegant quarters in the "Lochiel" have tempted me to spend an extra hour in looking back on some of the pleasant experiences of the day, and to take the readers of the GARDENERS' MONTHLY into my confidence in regard to them.

CENSUS REPORTS.—A census if reliable would be very desirable, but it is the reverse with one which is found worthless. It is extremely likely that after the immense amount of money spent by the United States on this affair, it is of little more value than a row of pins. Every one knows that the progress of Philadelphia during the decade was almost magical. Even during the panicy times, when distress ruled everywhere, Philadelphia industries went on, and so nearly work for all was there, that notwithstanding a population of nearly a million, at no time did its pauper-roll exceed one thousand. But in spite of evidences everywhere of the enormous growth of this city, the industrial returns were made to appear lower than they were ten years before by these veracious census figures. So absurd was this conclusion that a number of public spirited men determined on a new census, and the whole matter was placed in the hands of Lorin Blodgett, whose eminent abilities for the task and strict conscientiousness in the performance of duty cannot be questioned. His returns have just been published. Instead of 8,300 industrial establishments of certain classes named by the census, he finds there are 11,000. The census gives 173,000 as the number of persons employed in the industrial establishments of Philadelphia; Mr. Blodgett finds there are 235,000. In iron factories there are 11,000 more hands employed than the census gives, and 20,000 more in the manufacture of textile fabrics. The census gives $9,000,000 as the amount of capital employed in printing and publishing, while the fact proves to be that there are $23,000,000. That Mr. Blodgett has not exaggerated the figures seems apparent from what we know. In the class of nursery florists and seedsmen, in three collective wards of the city, in which some twenty-three firms are enumerated, we know of one who employs one-third the number, and whose products are one-third of that given for the whole. There seems to be no reason for not believing that the same errors exist in the whole make-up of the U. S. census as has been shown to exist in Philadelphia; and that we must look on the whole job as valueless for any practical purpose. It may be noted that this valuable work of Mr. Blodgett was undertaken with some sort of an understanding that he should be reimbursed for his expenses, yet, under some misunderstanding probably, the city councils failed to appropriate a small sum asked for the publication of these returns, and we believe the whole cost of this extremely useful book has been borne by Mr. Blodgett himself.

DR. GEO. ENGELMANN.—Only a few days ago the writer has a line from this eminent botanist, in which he said, "I am not as well as I was on the ocean—but better than I was at Cambridge, so I ought not to complain. Send me all the material you can on Echinocactus Whipplei and E. polyancistrus. I want to look into these and some allies." And the telegraph this morning, Feb. 16th,

brings word of his death! It must have been somewhat sudden. He had just passed his 75th birthday, having been born at Frankfort-on-the-Main on the 2nd of February, 1809. When still a young man he published a very able work, called "Anthologia;" came to this country in 1832, settled in St. Louis in 1834, where as a practising physician he made his home.

We are quite sure that all Dr. Englemann's co-laborers will concede that in Dr. Englemann, America had no greater botanist. As his labors in botany and other sciences had to be subservient to his duty to his medical profession, his works will not compare in the volume of utility with that of those who have been able to devote the greater part of their lives to the service; and yet he was able to make his limited time of special value by taking up separate classes of plants for close study, and hence difficult families often became objects of minute and careful examination. Thus Cactaceæ, Cuscutæ, or the dodder family, Juncus or the rushes, Coniferæ, and others were especially elaborated, and in them he became the recognized authority whenever difficult questions had to be settled.

In disposition, Dr. Englemann had a sweetness and child-like candor that made him universally beloved. He was rarely harshly-critical, and seemed always to have time to listen to the merest novice, whenever it was at all likely that there was anything new to learn. To all of this was joined a geniality, not to say jollity, of character which led him always into human sympathy, and to enter heartily on all occasions into the happy side of life.

It is not uncommon to say in notices of this kind that the deceased friend will be sadly missed within a large circle of friends; but in the case of Dr. Englemann there is no language which will adequately express the great void in the botanical world which all will feel by his departure. His wife, often the sympathetic companion on his botanical journeys, died a few years ago. He leaves an only son, an eminent chemist in St. Louis.

THE ENGLISH FLOWER GARDEN. — By Wm. Robinson, Editor of the *Garden, &c.* London: John Murray; New York: Scribner & Welford.

The indefatigable Mr. Robinson has issued many beautiful and useful works, but probably no one which will prove more acceptable than this. His "Parks and Gardens of Paris" was well received by the community, but with all its admirable points it is to our mind excelled by this. As he himself says in the preface, "Gardens generally are still poor in variety of flower and form. There is much more in flower gardening than is usually seen. It is an art that in all stages of life might afford men infinite pleasure, and work at once innocent, healthy and refining. But they cannot know of its charms without a complete change in the narrow and 'hard' way in which it is generally practiced," and the work proceeds on just this plan. It shows what gardening is now, and what it might be; how labored, costly and unsatisfactory it is, and how simple and satisfactory it may become to even a limited purse. It is profusely illustrated with plans of gardens and grounds, sometimes showing them as they are, and then as they should be, with full directions for laying out and adorning them. We have often had inquiries for such a work, but have been unable to name any one that covered all the ground as this does. Though called the "English" Flower Garden it is in a great measure suited as well to America. In fact, it is a work which should have a wide sale in our country.

The candid reviewer of a work is expected to point out the short comings as well as the excellencies of tasks like these. It is extremely rare that some point may not be seized on for adverse criticism. It is a pleasure to say that it is no easy task to find anything faulty in this. We expected of course to find the universal coining of common names before they were common, and thus leading to a perfect Babel in nomenclature, exemplified in this as in some former work by the same author. Instead, we find the teaching that "it is generally a good plan to give a place to the 'common name.' The Columbian maple, the Dove plant, the Maiden-hair—these and such things that are really 'common,' or have some recognition, or some meaning or association, should be given; but to merely translate the Latin name to give us something like the 'acuminate-leaved-Sarcoglottis,' or the 'long-tubed Brain-bane' is not desirable." This sounds so much like our own teachings, that it came with gratification. But some of the contributors—for the work is made up by many leading specialists—have not always remembered this wise lesson, and especially the author of the chapter on Campanula, a crop of just such translations as are justly, as we think, condemned on another page. Some of these separate chapters too seem to have fallen into not over-competent hands. The one on cactuses is very faulty. When we are told that "eight or ten species of cacti were seen in the garden of Dr. Bell at Manitou, in Colorado," all wild "in the neighbor-

hood," the accuracy of the statement depends on whether a few dozen or a few hundred miles are covered by the word neighborhood. The figure of the "North American Echinocactus," is not an Echinocactus at all, but Mamillaria vivipara; and in the text Echinocereus and Echinocactus are all confounded under the former name, while one Echinocereus nœphiceus seems to be an imaginary name, or possibly bad proof-reading for phœniceus. While on the subject of cactuses, we may say that here we have a correct sketch of Echinocactus Simpsoni, while the colored plate given in the 11th volume of the *Garden* was not, as we pointed out at the time of issue; notwithstanding which Mr. Sereno Watson had it subsequently in his bibliographical references without correction, whereat we were much surprised. As we remarked before, slips of this kind, common to most works, are rare in this, and we can cordially commend it to American readers, as perhaps the most profitable floricultural work that has appeared for many a long day.

SCRAPS AND QUERIES.

FIRST APPEARANCE OF THE YELLOWS IN THE PEACH.—A correspondent inquires when the yellows made its first appearance in this country and where? We cannot answer him. No doubt it was in existence long before public attention was called to it, and before it was recognized as a distinct disease. At the end of the last century we find in the literature of the time many complaints about the short-lived nature of the tree of "late years," and in 1805, the American Philosophical Society offered a premium of sixty dollars for the best essay which should point out the cause and the remedy for this disease. For the essays which received the money we would not give sixty cents in our time, but it goes to show the great concern which some trouble, tending to make the peach short-lived, gave even at that time, and it is more than likely it was what we now know as "yellows." People did not look into microscopic matters as closely then as they do now-a-days.

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

THE CHRYSANTHEMUMS AT THE PENNSYLVANIA HORTICULTURAL SOCIETY EXHIBITION.

BY CHRYSANTHEMUM.

In the January number of the GARDENERS' MONTHLY I notice an article on the skilful culture of the chrysanthemum by Mr. John Wooding. I was certainly very much surprised to see that Mr. Wooding had made such a blunder. Mr. Wooding claims that the chrysanthemums exhibited by Mr. Bullock's gardener on the 5th and 6th of November, 1883, were planted in the open ground and lifted in the fall and put into 12 and 14 inch pots. Also that the plants were from two to three years old. Having visited Mr. Bullock's place at Conshohocken some five or six times during the year 1883, I think I can give Mr. Wooding some information concerning the plants. In March, 1883, I visited Mr. Bullock's place and saw the cuttings of these same plants in the cutting-bed, and saw them as they advanced from time to time during the summer and fall. The plants after being taken out of the cutting-bed were potted into 2½-inch pots and re-potted as they required it up to 12 and 14 inch pots, and grown all through the summer in pots. The plants would only be one year old this coming March, 1884. Another point worth considering is, that these plants were grown merely for cut flowers and not for exhibition, and I have no doubt, had Mr. Bullock's gardener disbudded his plants, he could have shown excellent flowers.

CHRYSANTHEMUM SHOWS IN BOSTON.

BY E. S. B.

In your January number, page 8, referring to the culture of the chrysanthemum, you say: "It is reported that at the New York show they had a plant five feet in circumference. It would interest many of our readers to know if this came from the open ground also."

At the chrysanthemum exhibit of the Massachu-

setts Horticultural Society last fall, there were scores of plants over ten feet in circumference, and Dr. H. P. Walcott exhibited one plant of Golden Mlle. Marthe lacking a few inches of five feet in diameter, which in common with all the plants exhibited at this show was grown from a cutting struck in March. No good growers about here—and I may say parenthetically that in no part of the country is the chrysanthemum grown so well as around Boston—would attempt to grow this plant except from cuttings. Old stools are well enough in their way, but they never give such fine flowers or make such symmetrical plants as young vigorous root sprouts. They are grown in the open ground and lifted and transferred to pots, and very small pots at that, in September. Our summers are too exhaustive and arid for continuous culture in pots, as in England. I have, however, seen enormous plants covered with leaves down to the seven-inch pot, in which they were flowered.

The New York chrysanthemum exhibit was very fine and creditable to the society which is doing such good work there for horticulture, but the chrysanthemum shows of the Massachusetts Society have for years been unequalled. Last fall the immense upper hall was filled with the most magnificent lot of plants ever shown in this country, embracing all varieties of the flower, new and old, and rivalling—so say those who are familiar with English shows—the best exhibit across the water. It is not unlikely that at the show of 1884 both halls of the society will be filled, and if such is the case, the display will merit any trouble which may be taken to witness it.

In reading over this short article, it occurs to me that some of your readers outside of Massachusetts may charge me with egotism, but there is no question about the facts stated, and if your readers wish to substantiate then let them come on next October and take in our show, when I think they will acknowledge the truth of what I have written.

In connection with this subject let me ask, why our leading horticultural journals like the GARDENERS' MONTHLY do not imitate their English contemporaries and publish comprehensive descriptions of the leading flower shows of the country, written by some one who can give an intelligent idea of what is exhibited. Most of this work is left to the daily press, whose writers, unfamiliar with the subject, make sad business of their task. Such splendid exhibits as those of the Massachusetts and New York Societies are worthy of more intelligent description than at present vouchsafed by the horticultural press. *Boston, Mass., Jan. 24.*

[The only reason why the GARDENERS' MONTHLY does not give place oftener to comprehensive descriptions such as our correspondent now kindly sends us, is simply that they are not sent. The Secretaries of many societies do send us "reports," and they generally read, "1st prize, potatoes, John Smith; 2d prize, Henry Jones; 3d prize, Paul Brown," and so forth; and we do not publish these, simply because it cannot possibly interest Johnson in Chicago to know Smith in Philadelphia had a dollar for a peck of potatoes at the great exhibition. We have presented the fact over and over again in these columns—till we tire from seeing no good come from presenting it—that it is the duty of a horticultural society to honor its successful exhibitors by letting the people know of the excellence of their productions, that the society's duty ought not to end with a mere publication of names of the successful exhibitors, and the few dollars given to them. At any rate, whenever we get the "comprehensive descriptions" we cheerfully make place for them, and "B" has our best thanks for his paper and his presentation of the subject.—Ed. G. M.]

EDITORIAL NOTES.

AN INTERNATIONAL EXHIBITION OF FRUITS.—The first Monday in December 1884 an exhibition, to continue six months, will be opened in New Orleans, and it is proposed to make pomology an especial object of interest in the exhibition. Mr. Parker Earle, Cobden, Ills., has taken in hand the working up of this branch, and all horticulturists should take a pleasure in aiding him. He will be glad to give all the needed information. From what we understand, we have an impression that nothing like what this will be, has ever been seen in this country.

DESIGNS AND FLOWERING PLANTS.—The Secretary of the New York Horticultural Society compares the cut flower exhibition, its enormous cost, and the momentary pleasure it gave to the sightseer, with the effect produced on the public mind by the chrysanthemum show, and much to the advantage of the latter.

MASSACHUSETTS HORTICULTURAL SOCIETY.—The schedule of premiums for the coming year has been distributed, and contains liberal offers for the encouragement of every branch of Horticulture. In the line of new fruits, vegetables and flowers, there

is a long list of offers ranging from $30 to $60, for seedlings of approved merit. Copies may be had from Robert Manning, Secretary, Boston, Mass.

PENNSYLVANIA STATE HORTICULTURAL SOCIETY.—The annual report for 1883, from Secretary Engle, Chambersburg, Pa., is before us, and as usual full of very interesting matter. Those who believe that societies of this kind are mere trade organizations, and have little interest for those who are not commercial men, will have a different idea after looking over a work of this character. The frontispiece is a colored illustration of the improved Chinese Primroses, as brought about by Henry Rupp of Shiremanstown. Another pretty colored plate is of the "Ida" cherry. It appears to be one of the many excellent seedlings native to Pennsylvania of which the fruit culturists of the state are proud. A picture of a red raspberry, may make people who are indifferent to fruits, determine to plant some good kind or another, if it should serve no other purpose than the evident one here of making a pretty picture book. "Celery culture" is illustrated with some diagrams showing how to blanch without much earth; and there are good wood-cuts of the Siedel, Clark, and other good Pennsylvania apples.

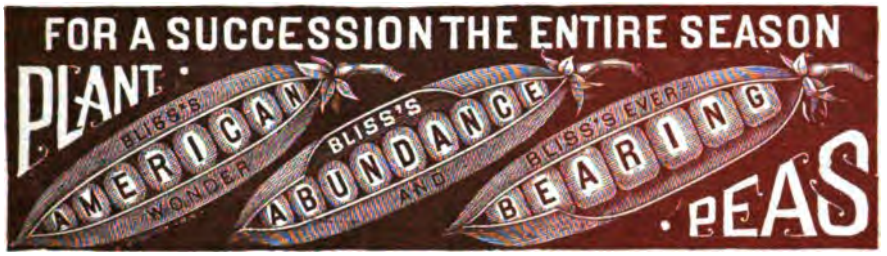
SCRAPS AND QUERIES.

MR. WILDER ON NOMENCLATURE.—"Boston" says: "I notice that Mr. Wilder in his last address before the American Pomological Society, has deprecated the use of long and vulgar names for new fruits and plants, and instances, among others, the prefix of 'President,' 'Colonel,' 'General,' &c. This is very well, and we have President Wilder Strawberry, when Wilder would have been as honorable, much shorter, and as well. Lately I notice that a member of the Massachusetts Horticultural Society has named a new pear 'President Clarke.' A gentlemen once conversing with me frequently spoke of what 'President Walker' said and did. In the spirit of inquiry I observed that I did not know that we ever had a president by that name. 'O,' said he, 'I mean President Walker of Harvard College.' I, of course, stood informed. When a man reaches the presidency of the United States there may be some reason for applying the term 'President' to his name, but here it should stop, as the minor and local presidents are too numerous for particular designation."

[We doubt whether it is worth while in these days to have President attached to the name of a fruit, though it should be George Washington himself. Life is continually growing shorter for work as the world of progress runs, and the time is not distant when even those people with long surnames will petition legislatures to get them changed. The time it takes a fellow to remember the polysyllabic names he hears in society is all a loss to humanity. Hundreds of us every day are envying those who are simply Smith and Jones, and it is no wonder these simple named creatures are so proverbially numerous. This is the reason they are so numerous. The hard names have died out from sheer inability on the part of their descendants to remember them, and these unfortunates naturally fall into the class of Smith or Jones. Whoever heard of a hard name that could count its thousands in a city directory? You will find a hundred Browns, Whites, or Blacks, for every Knickerbocker or Kilmanseg. If the introducer of a new fruit or flower does not want it to die an untimely death let its name be short and sweet, whether it honors anybody or not.—Ed. G. M.]

IN REPLY TO JOHN WOODING'S LETTER, HEADED "SKILFUL CULTURE OF THE CHRYSANTHEMUM,"—Mr. Stewart, gardener to Mr. B. Bullock, writes: "The chrysanthemums that I exhibited at Horticultural Hall were all pot-grown and were not started with the intention of showing them, but merely for the purpose of furnishing cut flowers for my employers. They were propagated in March, 1883, and three of the most prominent commercial florists in Philadelphia and suburbs had the pleasure of seeing them in different stages of growth, and at the solicitations of these gentlemen I sent them to the exhibition, where, in the opinion of the judges, they did their share toward making the exhibition a success. I consider that you, Mr. Editor, have done the Pennsylvania Horticultural Society a great injury by endorsing such a letter, without having had opinions from competent persons."

[Mr. Wooding merely offered an opinion that the plants were not pot-grown. As we understood him, he did not suggest that there was anything wrong in such a method of culture, or in exhibiting plants so grown; but he thought that if skill in pot culture was the object of a premium, and not merely a fine plant in a pot, there ought to be separate items in a schedule for them. It was this suggestion that we endorsed, and we endorse it still. The fact that Mr. Wooding may have been honestly mistaken in regarding these as open-ground plants is altogether another matter.—Ed. G. M.]



Pea, Bliss' Abundance.—90 pods counted on a single plant. Very productive, 15 to 18 inches high, requires no brushing. Second early. Excellent quality. 25 cts. per packet; 5 packets, $1.00. Postpaid.

Pea, Bliss' Everbearing.—A perpetual bearer, yielding a full crop until frost. An excellent late variety, 18 to 24 inches high. Requires no brushing. Peas of large size, many 1¼ inches in circumference. Immensely productive. 25 cts. per packet; 5 packets, $1.00. Postpaid.

Pea, Bliss' American Wonder.—The best and earliest variety grown. Very dwarf, excellent flavor. 20 cts. per packet; 40 cts. per pint; 75 cts. per quart. Postpaid.

N. B.—These three varieties will give you Peas throughout the entire season until frost.

Cauliflower, Sea Foam.—The best early variety, always sure to head. 50 cts. per packet.

Watermelon, American Champion.—The best eating and best shipping Melon grown. More productive than any other sort. 25 cts. per packet; 5 packets for $1.00.

$50.00 in premiums offered for 3 largest Melons grown. For particulars, see *Novelty List.*

Rhubarb, Early Paragon.—A new English variety. The earliest and most productive variety. Never runs to seed. Roots only for sale. Price, 75 cts. each. Postpaid.

Pansy, Bliss' Perfection.—The choicest strain yet produced. Our *Gardeners' Hand Book* for 1884 contains a beautifully colored plate of this magnificent variety. 50 cts. per packet of 50 seeds.

Carnations, Shakspearean.—The finest ever introduced. Continue in flower the whole season. 50 cts. per packet. Plants, 50 cts. each. $4.00 for the set of 9 varieties.

Wild Garden Seeds.—A mixture of 100 or more varieties of Flower Seeds. A packet will plant a square rod of ground. 25 cts. per packet; 5 packets, $1.00.

Tigridia, New White.—One of the most beautiful of Summer Flowering Bulbs. 25 cts per bulb.

Remit by Postal Note, Money Order, Registered Letter or Draft.

For other Novelties see **Bliss' Illustrated Novelty List,** which describes the newest and choicest Flowers, Vegetables, Fruits, Cereals, Plants, etc. Mailed *free* on application.

Bliss' Gardeners' Hand-Book for 1884, containing 150 pages, 300 illustrations, and two beautiful colored plates. Tells **What, When** and **How** to plant, and is full of information, invaluable to all interested in Gardening. Mailed for 6 cents to cover postage.

B. K. BLISS & SONS, 34 Barclay Street, New York.

The GARDENERS' MONTHLY

AND HORTICULTURIST

FOR 1883-4.

SUBSCRIBERS

are requested to send at least one **NEW** name with their own, if possible. For this attention, we will furnish **THE TWO** at $3.00 for the year.

TWO NEW SUBSCRIPTIONS at $3.00. FIVE at $7.00.

Remit by MONEY ORDER or REGISTERED LETTER; or if you send DRAFT or CHECK, make payable on MIDDLE STATES, NEW ENGLAND or MARYLAND. On BANKS west and south of those points add twenty-five cents to each CHECK, to refund cost charged us for collection. Currency is at risk of sender.

RESPONSIBLE AGENTS

Will be allowed a liberal commission, retainable out of subscriptions secured and forwarded. Send for net rates. Sample copy 18 cts., postage stamps. We do not hold ourselves responsible for the acts of *Bogus Agents.*

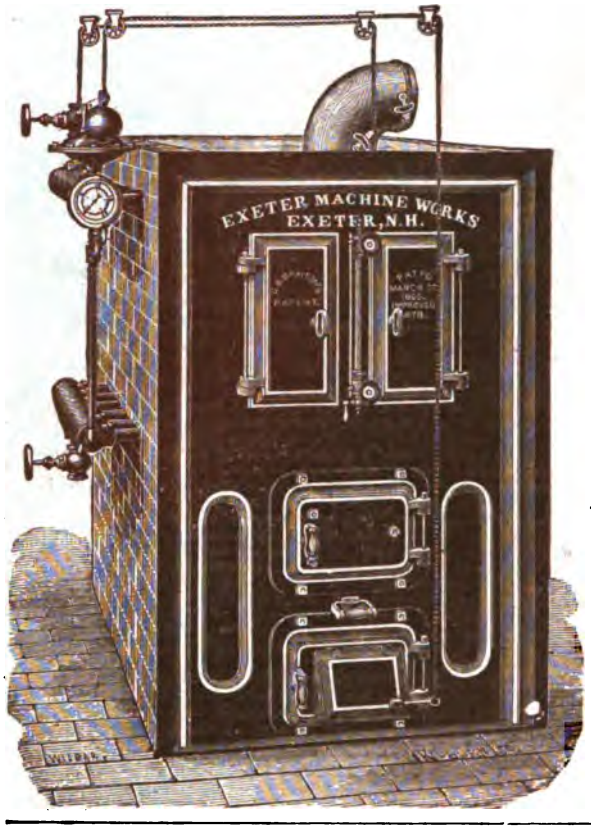
SUBSCRIBERS MUST CHOOSE THEIR AGENTS AT THEIR OWN RISK.

Any **Subscriber** who has already renewed his subscription and paid $2.00 may order a new subscriber at the rate of $2.00 the two, by remitting the additional $1.00 to balance, and oblige, with thanks for past favors and efforts.

All subscribers, at whatever rate, are invited to take advantage of our list of **CLUB PAPERS.** See advertisement.

CHARLES H. MAROT, Publisher,

814 Chestnut Street, Philadelphia.



THE EXETER HEATING APPARATUS.

GREENHOUSE HEATING A SPECIALTY.

Our systems comprise Hot Water Heating, Steam Heating, and the combination of Steam and Water.

OVER 1000 BOILERS IN USE.

Exeter Machine Works

19 Federal St., Boston, and Exeter, N. H.

We solicit correspondence from any party contemplating a change in their apparatus. tf12

A NEW BOOK NOW READY.

THE ROSE

A treatise on the Cultivation, History, Family Characteristics, etc., of the various groups of Roses, with accurate descriptions of the varieties now generally grown.

BY H. B. ELLWANGER.

Pp. 293, 16mo, cloth. Mailed, post-paid, on receipt of price, $1.25. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

THE SCHOOL GARDEN

BY DR. SCHWAB, DIRECTOR OF THE VIENNA GYMNASIUM, ETC.

FROM THE GERMAN BY MRS. HORACE MANN.

Advocating education by labor as well as by study, not as a task but as a delight. Adapting the kindergarten principle to older children. In France and Sweden it is no longer an experiment. School gardens in city and town are destined to be a great educational force in America. This book, full of spirit and enthusiasm, will materially hasten the day. Price by mail, 50 cts. each. By express, 5 copies for $2.00, 12 copies for $4.00. Sent on receipt of price.

Address, CHAS. H. MAROT, 814 Chestnut Street, Phila.

The Botanist's Pocket Book.

2nd Edition, cloth limp, pp. 208. By W. B. Hayward. Containing the Botanical Name, Common Name, Soil and Situation, Growth and Time of Flowering of every Plant, arranged under its own Order. Price $1.70. Mailed, postage free.

CHAS. H. MAROT, 814 Chestnut St., Phila.

HOW TO READ

AND HINTS IN CHOOSING THE BEST BOOKS,

With a classified list of work of Biography, History, Criticism, Fine Arts, Fiction, Poetry, Religion, Science, Language, etc. By Amelie V Petit. Pp. 220. 12mo, cloth. Price, $1.00. By mail, post-paid on receipt of price. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

GREENHOUSES HEATED

BY LOW PRESSURE STEAM.

mh12 SATISFACTORY PERFORMANCE OF APPARATUS GUARANTEED. ADDRESS,

E. H. BOCHMAN, - - - - Box 373, Pittsburgh, Pa.

KISSENA NURSERIES

TREES AND SHRUBS—OLD, NEW, RARE AND HARDY.

PARSONS & SONS CO., Limited,

Descriptive Catalogue Free. f.1 FLUSHING, L. I.

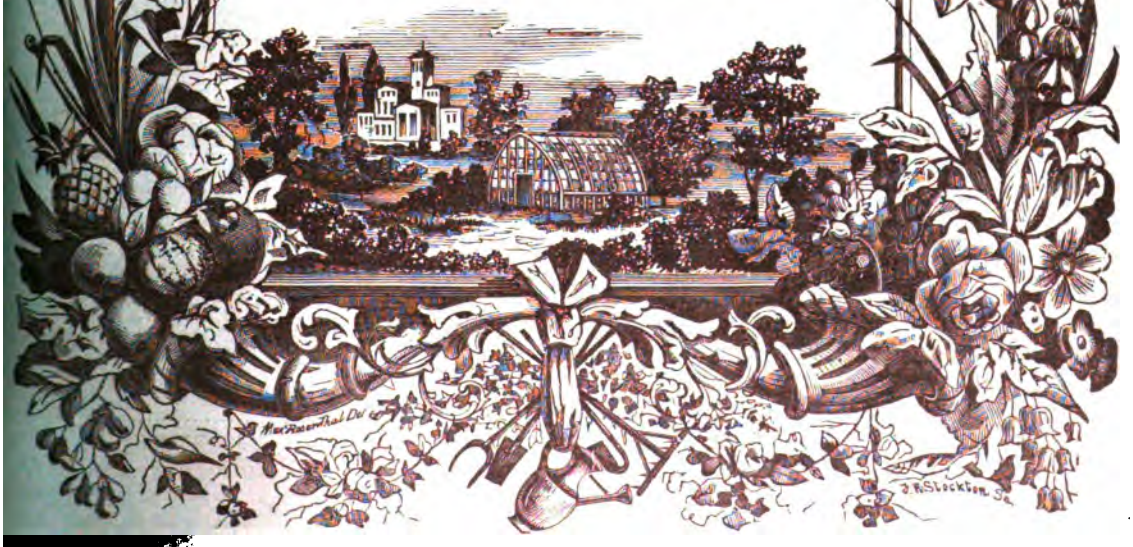
APR 1 1884

Harvard College Library

THE GARDENERS' MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

Vol. XXVI. No. 304.
(Combined Magazines, Thirty-ninth Year.)
APRIL, 1884.
PUBLISHED BY CHARLES H. MAROT,
814 Chestnut Street, Philadelphia.



[Entered at the Post Office, at Philadelpia, Pa., as second-class matter.]

THE GARDENERS' MONTHLY

AND HORTICULTURIST.

It is published on the first of every month at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS relating to subscription or advertising should be addressed.

☞ Communications, Copy and Packages for the Editor should be addressed to THOMAS MEEHAN, GERMANTOWN, PHILADELPHIA.

SUBSCRIPTION PRICE, POSTAGE PAID, $2.00.

ADVERTISING RATES IN THE GARDENERS' MONTHLY:

	⅛ col. or 12 lines.	⅙ col. or 16 lines.	¼ col. or 24 lines.	⅓ col. or 32 lines.	½ col. or 48 lines.	1 col. or 96 lines.	1 page, or 192 lines.
One Insertion	$3.00	$4.00	$5.50	$7.00	$10.00	$18.00	$35.00
Two times, each	2.90	3.90	5.00	6.80	9.00	17.00	33.00
Three " "	2.80	3.75	4.75	6.55	8.50	15.50	30.00
Four " "	2.70	3.60	4.50	6.30	8.10	14.40	27.00
Five " "	2.55	3.40	4.25	5.95	7.65	13.60	25.50
Six " "	2.35	3.15	3.93	5.50	7.05	12.45	23.50
Seven " "	2.20	2.95	3.65	5.15	6.60	11.75	22.00
Eight " "	2.05	2.75	3.45	4.80	6.15	10.95	20.50
Nine " "	1.90	2.45	3.20	4.45	5.70	10.15	18.85
Ten " "	1.75	2.30	2.85	4.05	5.25	9.30	17.45
Eleven " "	1.60	2.15	2.65	3.75	4.80	8.55	16.15
Twelve " "	1.50	2.00	2.50	3.50	4.50	8.00	15.00

Twelve lines nonpareil is ⅛ col. A less space than ⅛ col. will be furnished at same rate per line as ⅛ col.
For space on FLY-LEAF and LAST COVER PAGE, also FIRST PAGE advertisements facing last reading page, 20 per cent. advance on above rates will be charged.

CHAS. H. MAROT, Publisher, 814 Chestnut St., Philadelphia.

CONTENTS OF THE APRIL NUMBER.

SEASONABLE HINTS:

Flower Garden and Pleasure Ground 97-98
Greenhouse and House Gardening 103-104
Fruit and Vegetable Gardening 109-110

COMMUNICATIONS:

Rose Culture 98
Enemies of Cultivated Aquatic Plants 99
Hardy Roses 100
The Culture of Roses 101
The Wm. Francis Bennett Rose 104
Rose—André Schwartz 104
Setting Glass 105
Cool-house Orchids 105
Seedling Begonia 106
Celery—"White Plume" 110
Notes on Nut Trees 110
Peaches Under Glass 111
Cultivation of Osiers 111
Apple Notes from Montreal 112
Tree Planting in Dakota 114
White and Black Spruces 114
Pecans in the North 115
Profitable Eucalyptus Growing 115
History of Honey-dew 117
Honeysuckle Apple 118
Is Agriculture a Science or an Art 118
Botanical Collecting in Large Cities 119
Phylloxera Law in Holland 123
New York Horticultural Society 127
'Pot Grown" Chrysanthemums 128

EDITORIAL NOTES:

Lilium auratum—Artistic Use of Weeping Beech—Evergreen Hedges for Seacoasts—Barbed Wire Fences 101
The Floral Embellishments of a State Dinner—Phalænopsis Schilleriara—Azalea Mollis—Dendrobium Wardianum—Gladiolus Flowers 106
Grapes for New England—The Phylloxera in Australia—Fighting the Phylloxera—Fraudulent Packing in Apples—Heights of Peas—White Doyenne Pear in Ohio—A White Black Currant The English Gooseberries—Everbearing Mulberries—Profitable Vegetables—White Plume Celery —White Asparagus—Tomatoes in England—The Como Onion—Horse Radish 112-113
Forests and Rainfall—Chinquapin—Why Timber Decays 116-117
Remarkable Vitality of Willow Twigs—Zygophyllum Sedeni—The Berne People and the Phylloxera—Solanum Ohrondii—Foretelling the Weather—Transportation of Cut Flowers—Catalpa speciosa 120-123
Dr. Geo. Engelmann—Professor S. B. Buckley—Pine Grove Cemetery near Boston—The Native Flowers and Ferns of the United States—Silk Culture Chart—Florida, and Game Water Birds—The Book of Plant Descriptions, or Record of Plant Analysis—Palliser's Useful Details—The Florida Dispatch 124-126
Mississippi Valley Horticultural Society—American Forestry Congress—Sales at Horticultural Exhibitions 128

NEW OR RARE PLANTS:

A Rare Immortelle, Gnaphalium decurrens—Caryopterus mastacanthus—Dimorphanthus mandshuricus—Single Chrysanthemums—Hydrangea Hortensia rosea 101-102
Nepenthes Mastersiana—Azalea, Miss Buist—Bouvardia scabra 106-108

SCRAPS AND QUERIES:

Roses for Buffalo, N. Y.—The Confederate Rose—Rose, Etoile de Lyon 102-103
The January Temperature at Saratoga, N. Y. 108
Budded Peach Trees—Root Pruning Grapes—Improved Asparagus 113-114
Rainfall in the West—Seeds of the new Species of Potato—The Glastonbury Thorn—Rose Within a Rose—Distribution of Weeds—Dish-Cloth Gourd 123
Legible Signatures—A Good Book on the Rose—Rules for Plant Names—The Jewish Citron 126-127

FLOWER GARDEN & PLEASURE GROUND. 97-103
GREENHOUSE AND HOUSE GARDENING 103-108
FRUIT AND VEGETABLE GARDENING 109-114
FORESTRY 114-117
NATURAL HISTORY AND SCIENCE 117-123
LITERATURE, TRAVELS & PERSONAL NOTES 123-127
HORTICULTURAL SOCIETIES 127-128

APR 1 1884

THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

VOLUME XXVI. APRIL, 1884. NUMBER 304.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

When King James undertook to write a book against the use of tobacco, no doubt many loyal people thought smoking would soon be a habit of the past, but still people smoke and chew to a degree which must make the manes of the good old king glad that its body is no longer of this tobacco stained world. The invectives launched at the bedding system of arranging summer flowers, seem likely to meet a similar fate. The old and lovely herbaceous plant, and the mixed flower border, still take a back place, and the carpet bed and mosaic fashion, still have the post of honor. There must be some want which the carpet bed supplies to render it so popular. It must have some underlying principle more than the mere love of following fashion to render its hold on the people secure. We believe we can see what this is, and that the natural love of art in man, that is to say, the love of making nature do for us what she will not do for herself, is no mean element in the popularity of the bedding practice. For our part we see no more reason why we should not force nature to give us carpet beds and mosaic flower gardens, than that flowers should be arranged in baskets or bouquets, or sprinkled around in certain places on dinner tables or as festival ornaments. But we should love to see the beautiful mixed flower border less forgotten than it seems to be. The hardy herbaceous plant, which asks little favor, and takes care of itself with but small encouragement, is capable of giving pleasure at least equal to any mosaic flower bed, and we should be glad to see the taste for these revived. With a few fine days in February, we saw a large mass of the winter Aconite in full flower in a mixed border; and in March, before the snow was wholly gone, the bees were at work on the deliciously scented, though not showy, flowers of the Pachysandra procumbens—a hard name—but no acceptable common one has yet got the popular heart. Then the Snowdrop, and its early competitor the yellow Frittilary, Anemones, Crowfoot, and such like visitors in the earliest spring day; who would be without them who has once enjoyed their company? A few people who love flowers, take delight in getting some one thing with which they know they can have thorough success, and make a special feature of it on their ground. Suppose, for instance, one could learn to grow well the Trailing Arbutus, and, after thus learning, made a special feature of it? What would excite the envy more, if there is a pleasure in making one's neighbor envious, than in having a huge mass of this lovely spring flower, arranged

in some unique and tasteful plan? We do this now with some few things. We do it with roses, rhododendrons, azaleas, and some other plants; and some of us go a hundred miles to see some wonderful pictures of beauty which these lovely things present ardent admirers of Flora. We should be glad to see more done in this line, though in no degree desiring to discourage the now prevalent taste for massing of leaf plants in summer gardening.

In planting new places, the landscape gardener usually has an eye to what the place will be when, some twenty years' hence, the trees shall have grown. But few of us think of that picture. To us these unfinished pictures need more filling now.

We approve of thick planting. Trees grow faster for one another's company, and a place well filled at once, saves many years of time to see them grow. Those not wanted after the place has grown some, can be transplanted to other parts of the ground. Where thick planting is to be adopted, of course care must be taken in locating those permanently to remain. But the trouble usually is that a thickly planted place is rarely thinned. People hate to see a tree cut down. In the public squares of Philadelphia the trees are crowding each other till the whole square looks like a crow's nest. Grass will not grow, first, because of the shade; secondly, because of the poverty of the soil, and thirdly, because of the drought from so many tree roots; and though the city of Philadelphia appropriates $25,000 a year to improve the squares, one each year in succession, it would be as much as the commissioner's place is worth to "cut down a tree." And this is an example of what is often seen. The only remedy is, to educate the public to plant thickly at first; but to thin every few years till they are of judicious width apart.

April is a good planting month. There is not much art in planting trees, though it is often much of a mystery. Not to let the roots dry for an instant between taking up and planting, everybody knows, but everybody don't do it; in fact everybody deceives himself. We have seen this distinguished individual leave the tops of trees exposed to the sun, with a mat or straw thrown over the roots, and think all was right—or heel in for a day or two, by just throwing a little dirt over the roots. This is a little good; but everybody's fault is, that although this may be ten minutes of good, he expects to get ten hours, or even ten days' value out of it, and thus he suffers more than if he had done nothing; because he forgets that the branches evaporate moisture from the roots in a dry wind, and the juices go from the roots through the branches, very nearly as well as directly to the air from the roots themselves. So with heeling in. The soil is thrown in lightly, or at most just "kicked" down. "It is only temporary," very few of the roots come in contact with the soil. They can draw in no moisture to supply the waste of evaporation, and thus they stay day after day —everybody satisfied because he sees the roots covered; really worse than if they had been exposed. We have no doubt that more trees are lost from imperfect heeling in than from any other cause whatever. Of course, if the tops be covered as well as the roots, there is less waste of moisture and more chance of success.

COMMUNICATIONS.

ROSE CULTURE.

BY DANIEL M. DUNNING.

Since reading of Mr. Beecher's troubles with roses it has occured to me that, despite the apparent tramping of the ground, the trouble might arise from its not having properly settled. It takes dirt some months to settle firmly in an excavation two feet deep, and no matter how firmly packed about the roots of the roses the constant settling would make it very difficult for them to "catch on," and I presume if they could have told their own story they would have complained that they "took two steps backward for every one forward."

Then there may have been trouble about his compost, especially if made with horse manure, which is altogether too heating for roses. A friend of mine who paid an enormous price for a quantity of compost last spring and made his beds up the same as Mr. Beecher describes, was disgusted because his roses did not grow right along and thrive and bloom, but on the contrary were in poor condition and covered with mildew in June.

I was requested to examine and account for the trouble, and pronounced it, ground not sufficiently settled, also too much rank horse manure. The remedy was removal of at least twelve inches of the compost and replacing it with good sweet soil; new soil if possible, nothing better than rotted turf from rich loamy soil of an old stump lot; fall planting of vigorous plants, with proper selection of varieties.

Mr. Beecher will probably find next spring that his beds have settled a good deal, and the compost will also be in better condition, and if he will

fill up and round up with good soil, as above described, and put out vigorous plants with plenty of "faith and love" I believe he will succeed. I should not look for any trouble from the May beetle grubs during the first year of planting, especially where the old soil was removed, unless they were noticed in quantities in the new soil as it was filled in. They don't like compost at all, but do revel in a rich sweet new soil, just such as the roses like. However, I have never had serious trouble from them. My roses have been a great comfort to me for several years past, and it was a proud and happy day for me last June when my friend, the veteran John J. Thomas, came over from Union Springs to see them, and I hope for the return of many more such annual visits from him.

For nearly a week I was kept almost constantly in my garden by callers "to see the roses," and it was a week of great pleasure. I think the rose that attracted the most attention of any in my collection of about one hundred varieties, was Eugene Verdier, which Mr. Thomas pronounced "surpassingly lovely." It certainly is my favorite of all my roses. Next comes Louis Van Houtte, so fragrant and of beautiful form, its rich velvety maroon contrasting so perfectly with the salmon-tinted silvery pink of the former. Then comes Baroness Rothschild, with its grand blooms rustling down in magnificent foliage, and La France, unequaled for fragrance; both rivals of Eugene, but lacking the beautiful shaded effect of the petals. Then Anne de Driesbach, with more carmine tint; then Jean Liabaud, darker and more velvety than Louis Van Houtte, but not of such good form or free-blooming qualities; then Captain Christy, difficult to manage, but magnificent when well grown, almost rivaling Baroness Rothschild; then Francois Michelon, large and of the finest form; then Alfred Colomb and Marie Bauman—these two comprising all that one really needs among the red roses, although there are dozens of other good ones.

Gen. Jacqueminot and Jules Margottin are valuable for making a great show in the beds, a perfect mass of bloom, but are of no use for cutting in comparison with any of the above. Other valuable and beautiful roses are, Mabel Morrison, the only good white; Marguerite de St. Amande, for perpetual flowering; Prince Camille and Xavier Olibo, beautiful dark roses; J. B. Camm and Ettienne Levet, both very fine; also, Charles Lefebvre, Marquise de Castellane, Marie Rudy, Horace Vernet, Fisher Holmes, Mad. Gabrielle Luizot and Glory of Cheshunt, the latter new and very promising.

The above comprise the best of my Hybrid Perpetual roses. The first eight or ten are real sensational beauties, particularly the first five. Nearly all of them are budded on Manetti, which gives much finer blooms than they would on own roots. Among the Hybrid Teas the only two which I have found valuable are La France and Captain Christy, both mentioned among the Hybrid Perpetuals, where they seem to hold their own very well for hardiness and vigor of growth. Those sent out by Bennett in 1879 I tried faithfully for two years, but was unable to make them grow. Two of the H. Noisettes have given me great satisfaction, viz.: Elise Balle White and Mad. Auguste Persin, pink and with delicious old-fashioned fragrance. Also the new Polyantha, Cecile Bonum, of a salmon tint, not much bigger than a butter-cup, and quite as free blooming. The Moss roses are great favorites of mine and Gracilis is altogether the most beautiful, both in bud and flower. The Crested is unique and beautiful in bud, and the old common Moss, far better than most of the new ones and, so dear to the heart of my childhood, will always find a place in my garden.

Auburn, N. Y.

ENEMIES OF CULTIVATED AQUATIC PLANTS.

BY E. D. STURTEVANT.

The conditions which I recommend for successfully growing tropical aquatics (*i. e.*, still, warm water, and a rich compost) favor the growth of a low form of vegetable life called confervæ, or green scum, which becomes very unsightly and troublesome unless eradicated. As the result of several years' experience, I am quite positive, that if abundance of goldfish are kept in the tank or pond, there will be no trouble in this direction. Other kinds of fish which are vegetarian in habit might perhaps answer as well, but the German carp is not to be recommended for tanks kept solely for the choicer varieties of aquatics, on account of their propensity for rooting in the mud, and feeding upon the fibrous roots which proceed from the rhizomes of the lilies. Should it be determined to keep a few German carp in the "lily garden" it will be necessary to place whole pieces of roofing-slate, or large pebbles, on the soil around the crowns of the tender Nymphæs.

Innumerable kinds of aquatic insects breed in the water, and some of their larvæ prey upon the leaves of the lilies, but the common water-

snail is the greatest enemy of aquatic plants. The goldfish assist very materially in destroying these larvæ and snails, but I have found a complete preventive of injury to the foliage from this source, by keeping in the tank, in addition to the goldfish, some of the common spotted sunfish. They are carnivorous in habit, and very alert and active. Moreover, it is impossible for mosquitoes to breed in a water lily basin in which abundance of the above-named fish, or those of a similar habit, are kept—or, more strictly speaking, their larvæ can never leave the water alive.

Thus, one objection to locating these tanks or ponds in the vicinity of the dwelling-house is removed. Their beautiful appearance and the ease with which they may be taught to feed from the hand (though it must not be done too frequently), make them a charming adjunct to the water garden. If the tank is two feet or more in depth, they can be left in it all winter with perfect safety in this latitude. Sometimes, towards autumn, brown aphides or plant-lice become troublesome on the lily leaves. A somewhat new insecticide which any one can prepare has proved effectual with me. It is called the kerosene emulsion, or kerosene butter, and is prepared as follows: Take two parts of kerosene and one part of thick sour milk. Warm the latter (to blood heat only), put the two liquids together, and agitate violently with a greenhouse syringe or a force pump. They will soon completely unite, and form a white soapy mass. This kerosene butter mixes readily with tepid water. One part of the butter should be thoroughly mixed with fifteen parts of water, and applied to the infested leaves with a syringe. With me, one application entirely destroyed the insects without any injury whatever to Nymphæs. A weaker solution of the emulsion must be used on any plants which are found to be injured by the proportions above given. Experience will be a guide in this matter. Very few applications of the remedy will be needed during the season. I am indebted to the Rev. Dr. J. H. Brakeley, of Bordentown, N. J., for the suggestion as to the use of the kerosene emulsion for this purpose. He had previously experimented with it upon the cranberry worm, and had met with gratifying success.

Those who attended the meetings of the American Pomological Society, last September, will remember that Prof. Riley also gave this insecticide great prominence. Why can it not also be used in the greenhouse and the flower garden? Is any one experimenting? If so, let us hear the result. In its native waters Nelumbium luteum is sometimes infested with a worm which penetrates the leaf at its junction with the stem, and eats downward into the heart of the stem. It also feeds upon the leaves, partially rolling up a portion of the edge and spinning a web under which to work. If their progress is unchecked, they will do much mischief to the foliage, and as yet there seems to be no remedy but killing them by hand. Great care should be taken that this insect (for no doubt the parent of the worm is a moth) is not brought to our gardens. "Forewarned is forearmed." I therefore caution any who attempt to transplant N. luteum from its habitat during summer time with foliage attached to the plants. They should be carefully examined and every worm destroyed. As the tubers are formed under water, if these are removed while dormant, of course no insects will be carried with them. I would here remark that few who try to dig tubers of N. luteum out of a muddy pond will ever attempt it a second time. It is a little too much like going after Chinese yams under water. Nelumbium speciosum is never attacked by this worm, unless infested plants of N. luteum are placed near it. *Bordentown, N. J.*

HARDY ROSES.

BY F. G. Z.

In answer to "Mrs. J. G. M.," of Buffalo, for fifteen hardy roses, I would name the following: Hybrid Perpetuals: Alfred Colomb, Antonie Mouton, Auguste Mie, Beauty of Waltham, Caroline de Sansal, Gen. Jacqueminot, Gen. Washington, John Hopper, Jules Margottin, La Reine, Madam Laffay, Madam Victor Verdier, Maurice Bernardin, Prince Camille de Rohan, Senateur Vaisse, Victor Verdier. With a little protection the following may be added of Hybrid Noisettes: Baronne de Maynard, Coquette des Alps, M. Alfred de Rougemont, Perle des Blanches, and La France, if the plant can be grown strong, otherwise the buds will not open. Summer Roses: Madam Plantier, M. Hardy and Persian Yellow. Of Bourbons: Appoline and Hermosa, these have done well here for the past five or six years without any protection. These are not all the good roses that can be grown here, but are some of the best old sorts, and are likely to give satisfaction. I have seen over one hundred varieties in full bloom, that had had no other protection than a covering with the plow. Climbers: Queen of the Prairie and Baltimore Belle are the best, to which

may be added Gem of the Prairie and Mrs. Hovey. For Pillar Roses: C. Jules Margottin and C. Victor Verdier. I cannot say that tree roses are a success here. I know a few that have done well, but by far the greater number fail.

Preparation of Soil and Planting.—If well rotted manure is spaded in on good soil it is all that is necessary; but if there is no objection to the expense, the method given on page 34 by the Rev. Henry Ward Beecher can hardly be improved, though better success might be expected for a Rev.

Two-year-old plants if well grown are a good size to transplant. It does not depend so much on the size of the plant as the care in handling and planting. The roots should not be allowed to get dry, and in planting the soil should be well packed round the roots.

The best time to transplant roses is, as soon as the ground is in condition, which is here about the middle of April. Most shrubs can be transplanted until the buds have fairly burst open, but I have never seen late planted roses a success, except when taken from pots. *Buffalo, N. Y.*

THE CULTURE OF ROSES.

BY DR. L. W. PUFFER.

Having cultivated roses in the open air, and under glass, for more than thirty years, I note with some interest Mr. Beecher's trouble. My own experience has shown me that roses are peculiar, in responding to the treatment they receive. I have sometimes thought they must be almost feminine in their nature, they are so capricious, growing many times like weeds, and again, under apparently the same circumstances, fading away to their death. Oftentimes I have succeeded so well that I felt certain that I knew all about their propagation and successful culture, only to find that I could not formulate absolutely successful conditions for their culture. It may be a truism to state, that plants when removed from one place to another, from one condition to another, get more or less mutilated, and are diseased, or at least in a condition not to absorb and assimilate plant food. Consequently at such times a liberal supply of food is many times deadly. A rose when moved should, I think, be kept in a partially shaded, even temperature, and the soil just moist, not wet. At such times there is little action by the leaves, and little water or food is needed. When the plant commences to grow, proper nutriment may be given with benefit. This is the most beautiful and satisfactory flower ever given to man by his Creator, and, if I except some of the more hardy and common varieties, their culture calls for very different treatment from that given to Dahlias, Hollyhocks and Pansies.

Brockton, Mass.

EDITORIAL NOTES.

LILIUM AURATUM.—It appears they find the same trouble, in getting Lilium auratum to do well in England, as we do in this country. A correspondent of the *Journal of Horticulture* says, that notwithstanding the enormous importations from Japan every year, the plant is unfrequent in those parts. From our experience we believe they are not planted deep enough.

ARTISTIC USE OF A WEEPING BEECH.—People are so accustomed to the little stumpy plants of weeping trees, as they are grafted on a few feet height of stems, fit for packing in a dealer's box, that they have no conception of what pretty objects they can be made by the judicious employment of art to get them up. The Weeping Beech, especially, offers many opportunities for garden skill. On the site of the old Parsons' grounds, at Flushing, is a Weeping Beech forty feet high, and the pendulous branches reach the ground. Openings resembling gothic arches have been cut in, and the effect is said to be very pleasing.

EVERGREEN HEDGES FOR SEACOASTS.—At the December meeting of the Massachusetts Horticultural Society, Mr. Edward Hersey notes that nothing in the way of evergreen hedges stands the salty atmosphere and keen sea breezes better than the Red Cedar, and this corresponds with our own observations.

BARBED WIRE FENCES.—The Old Worlders are fretting over the barbed wire fences. Very good, they say; but they injure stock and tear everybody's clothes. They will have to do as we are doing—set a rapid growing hedge plant when they fix their wires, and let them both interweave and grow in together. The wire will be there to keep the animal from getting through, and remain there though posts rot away—and the animal will be warned by the hedge not to tempt the line too much.

NEW OR RARE PLANTS.

A RARE IMMORTELLE, GNAPHALIUM DECURRENS.—Among perennial herbaceous plants those which will furnish ornaments for parlor vases

during the winter season, in the shape of Immortelles, are very desirable. We give here a sketch of one introduced a year ago by Haage & Schmidt of Erfurt, which, from their description, we judge would be very desirable. The A. margaritacea they refer to, is the Silver-leaved annual of our country, often seen to follow burnt woods; and if not quite so common wild, would be cultivated and esteemed.

It is a new species forming a dense compact branching bush about 10 to 12 inches high, out of which rise numerous heads of white flowers in dense corymbose clusters, appearing profusely on

Gnaphalium decurrens.

the ends of the flower-stems and on the many smaller side-branches. The plant is a perennial and probably just as hardy as the nearly allied Antennaria margaritacea, but, coming to perfection the first season when sown early, it can with success be treated as an annual. The neat charming globular flowers are sure to become great favorites among Everlastings, being more elegant than those of Antennaria used so extensively at present, and the plant is of much easier growth than the Australian Everlastings such as Helipterum, Waitzia, etc. It thrives luxuriantly in any soil, flowering in great abundance and needs no more care than Helichrysum or Ammobium. Where Everlasting flowers are employed this novelty is certain to be considered a very desirable and extremely valuable acquisition.

CARYOPTERUS MASTACANTHUS.—A good blue-flowered, hardy shrub is very desirable. The *Garden* has a wood-cut of this plant, with the following account: "It is a native of China and has been recently introduced to this country by Messrs. Veitch, who thus describe it in their catalogue: 'A sub-evergreen free-growing shrub, with Verbena-like foliage. It produces dense clusters of light blue flowers from the axils of the leaves of the young shoots. It flowers profusely for several weeks, and the young growths have a Sage-like fragrance.' Another species, C. incana, is a similar plant and equally pretty."

DIMORPHANTHUS MANDSHURICUS.—"Year by year, in the pleasure grounds at Kew, or elsewhere in the shrubberies, this noble-looking plant throws out its immense panicles of flowers," says the *Gardeners' Chronicle*. It has been found hardy near Philadelphia.

SINGLE CHRYSANTHEMUMS.—There seems to have been a satiety of double flowers. From double Dahlias the public taste has dropped to single ones; and the latest rage is for improved single Chrysanthemums. They say some of them are very beautiful.

HYDRANGEA HORTENSIA ROSEA.—A rosy variety has been introduced from Japan. It is regarded as a great improvement on the old pale pink kind.

SCRAPS AND QUERIES.

ROSES FOR BUFFALO, N. Y.—"Mrs. M." notes: "I did not want fifteen climbers, but five climbers and fifteen of other sorts. The climbers I have had experience with at my seashore home in Massachusetts were, Baltimore Belle and Sweet Briar. But I wanted a few more. The soil of my lot is a sandy streak in a clay region; but I should have to make my beds, so I don't see how that matters. The lot is well drained, sloping west. There are no trees anywhere near my garden, nor high buildings between it and sunshine. Our prevailing winds are from the water, south and west. Spring is cold and summer begins suddenly about the 5th of June, as a rule. Of course there are exceptions to this, but our winds are always cold until the ice from the upper lakes has all gone down the river. Our summer climate is a very pleasant one, but we have little or no very hot weather.

"I should not expect my roses to be a show bed, but would like to have plants that would be vigorous and thrive, from which I could cut flowers in their season for blooming.

"I think I must have omitted to mention Moss roses in my last letter, but I should want to include one or two in my list.

"What is the object of destroying leaf buds on

roses, as mentioned on page 40 of February number of your magazine?"

[In buying rose buds, florists require long stems to the flowers. There are leaf buds on these stems, from which the plant may be propagated. But the Bennett rose was sold with the condition that the purchaser should have the right to sell the flowers, but not the plants—hence to keep people from getting plants, he has to destroy the leaf buds before he sells the flowers.—Ed. G. M.]

THE CONFEDERATE ROSE.—"E. J. W.," Rat Portage, Manitoba, Can., writes: "I clip the following from the *Toronto* (Can.) *Globe* of Feb. 16:

"'The 'Confederate rose' is the name of a new flower which is white in the morning and red at night. Four of them have been planted around the grave of Gen. Albert Sidney Johnson in the State cemetery at Austin.'

"If there really is such a plant as that described in the above clipping, I would like to know more of it, and whether it can be purchased at a moderate price. I subscribed for your MONTHLY through my news agent, and have been very much profited and entertained by the January and February numbers which I have received."

[We do not know of any rose under this name. There are flowers which open white, and become pinkish when they fade, but we do not know of any rose which does this. It is barely possible that this is an exaggeration of some such fact, though still more possible that it is one of those silly paragraphs of a "smart" reporter, which do no credit to the newspaper press.—Ed. G. M.]

ROSE, ETOILE DE LYON.—Mr. A Wintzer, West Grove, Pa., writes: "I send you by this morning's mail two blooms of the rose, Etoile de Lyon. I am afraid they may be out of condition, as they have been in bloom the past two days. They were grown without manure or stimulant of any kind. It takes the buds a long time to open and they look better when full blown than in the bud form. But, for summer blooming in open air, I think it is the finest yellow tea rose we have in our collection; in habit the plant is a fine bushy grower and good bloomer. It is one of the easiest roses to root from cuttings and there are probably more young plants of it in America than in France; but I do not think this rose will take well with our florists who want early blooms because they can grow Perle des Jardins much cheaper in winter."

[These were truly beautiful roses, and it gave us great pleasure to examine them.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

What to do with pot plants in the summer is often a question. The great majority of plants do much better in the open air than under glass. It is found by experience that many do much better when taken wholly out of the pots, and set in the open ground. But it requires some judgment to select those that will stand such treatment. Those which come up with matted roots do excellently well; but if the plant be of a kind which has but a few wiry roots, they wither so much when lifted in the fall, that it is better to keep them wholly in pots. The Azalea does very well turned out, and even the Camellia does very well, if care be taken to keep down the red spider which works on them badly if the plant be set in a sunny place. Almost all soft wooded plants do very well indeed. Succulents like aloes, cactuses, and century plants, do very much better when set out in the open ground; and this is often a great advantage, as the huge tubs these plants are often kept in all summer are dreadfully troublesome things for people to handle. When only the plant is taken out of the tub, and the plant lifted to set in the tub, it is much pleasanter work, and then these succulents can be so arranged that they make pretty effects in the open air, and so do collections of other plants, for that matter. On many grounds, the large bed in which greenhouse plants are set out to board during the summer is among the chief ornamental features of the ground. Those plants which it is desirable to keep in pots may be set out where they can have the pots partially plunged in sand, tan, or coal ashes, and these may be arranged in a sort of flower-bed fashion, that will look neat. In our climate the summer heat is so great that it is found these summer pot plants do very well under the shade of trees, or on the north side of a wall or fence where they will get a

little protection from the all day sun. Basket plants all do well suspended under trees or other shady places, provided they can get a soaking of water at least once a week.

What we have written of greenhouse plants is of course equally applicable to plants from windows or other places in dwelling houses.

COMMUNICATIONS.

THE WM. FRANCIS BENNETT ROSE.

BY C. F. EVANS.

This was produced by Mr. Henry Bennett, the successful "pedigree rose grower" at his nurseries at Shepperton, Walton-on-the-Thames, London, England. Mr. Bennett hybridizes roses on strictly scientific principles, and has given us a number of fine results. He has however produced no rose which has given him the same satisfaction as the Wm. Francis Bennett. He speaks of it as "a marvel among roses," and truly it is. During a long correspondence with this gentleman prior to the purchase of this rose, I felt that probably his praises might be overdrawn; that being a plant of his own creation, he might possibly regard it as a foolishly indulgent father would a favorite child. During my visit to Mr. Bennett's greenhouses last summer, however, I quickly saw that in no way had the description surpassed the true merits of the rose.

It is the custom of Mr. Bennett to remove his plants from the greenhouse in the spring and place them in frames in the open air. It was my privilege and delight to see them at six o'clock in the morning, previous to any cutting having been made, and truly a more beautiful sight had never met my eyes. Hundreds of glowing crimson buds, backed by the beautiful green foliage for which the plant is so noted, glistening with dew and illuminated by the rays of the early morning sun, made a picture to gladden the eyes, and one, too, long to be remembered.

Do you wonder that I longed to transport this beautiful rose to our own land? Where can you find a nation more appreciative of the beautiful than our own. Rose lovers are so plentiful with us and so ardent in their devotion to this queen of flowers, that I foresaw the treat I should have in presenting a new rose to them so worthy of their admiration, and fully have my expectations been realized. I would like to tell you of the peculiar merits of this rose.

First, its color as you see is a beautiful glowing crimson, probably a shade lighter than our favorite "Gen'l Jacqueminot," although many specimens have shown themselves fully as dark as this rose. In fragrance it disputes the prominent place so long held by the "La France," but this quality speaks for itself. I hope our friends will test for themselves, from the few specimens I have brought here this evening.

I never have seen a plant so quick to respond to judicious pruning, nor indeed have I ever seen one better entitled to the term "ever-blooming" than this. To quote from an English paper, "the Wm. F. Bennett is the most persistent of winter bloomers. As with Wellington's soldiers at Waterloo, so with this rose; when one bud is cut off another quickly takes its place." I have seen no tendency whatever to mildew; in two houses filled with these plants I have seen no sign of it. Its growth is remarkably vigorous and its foliage resembles greatly that of roses of the Hybrid Remontant class.

In Europe this rose has taken premiums and first-class certificates wherever exhibited. Since its arrival here it has been awarded a premium and certificate at two flower shows in New York.

[Mr. Evans exhibited some charming specimens of this rose at the February meeting of the Germantown Horticultural Society, and was called on to make a few remarks, which we give as above. —Ed. G. M.]

ROSE—ANDRÉ SCHWARTZ.

BY T. F. S.

The rose, "André Schwartz," so beautiful in colored plate, does not yet seem "to equal Gen'l Jacqueminot" nor to supersede it. I have yet to learn of a place where it has been at all a success, in growth or flowering. The buds that I have seen, have been poor, pale, mis-shapen ones; the foliage, mildewed; the general appearance of the plants sickly, lacking vigor and freedom of growth.

I had intended to try the rose, but having been caught so many times thought best to wait until its reputation had been made. I will quote from a letter from one party that went into it:

"In reply to yours, 18th January, in regard of the rose "André Schwartz," I must confess that I am very much disappointed; it is not at all as represented. I have had a few good roses, but the majority of them are not true to the plate, and rather imperfect in form. My roses are well taken care of, planted in benches, and the André Schwartz had just as good a chance as any of

them, if any, better. It does not get mildewed but gives no general satisfaction."

My experience with "Etoile de Lyon" has been such as not to give much satisfaction—have had some fine buds, makes good growth, greatest share runs blind. The outer petals are curled, and stick so that they have to be pulled off, yet that would not make much difference if the quantity of buds was there. It seems to be "no good" for winter flowering—may come on in March and April with one crop. What has become of "The Duke" (of Connaught)—has he returned to England? *Saratoga Springs, N. Y.*

SETTING GLASS.

BY E. S. NIXON.

The time will come all too soon when the unhappy florist, forced by approaching winter, begins to busy himself with working in his glass. Last winter the writer had occasion to glaze a greenhouse during cold weather, and the necessities of the situation brought forth a method which I think is original and certainly a valuable one. The manner of setting generally in use is, to roll the putty out on a smooth board like pie-crust and to scrape a thin piece on to each side of the glass, which is then pressed into place. This plan will not work in cold weather as the putty will harden and much glass will be broken in putting in. This forced upon us the other plan which is as follows: Get lantern wicking at the drug store, which costs about 5 cents per ball or 25 cents per pound; mix white lead with oil to the consistency of thick cream, then measure a length of wicking, up one side, across the top, down the opposite side, and across the bottom of the sash pieces, so as to go clear around the rectangular figure formed by the inside grooves of the sash pieces. From this pattern a number of pieces are cut and put into the paint, which will quickly penetrate into every part of the cotton; take one end of the wicking in the right hand and draw it through the thumb and fore-finger of the left hand, so as to squeeze out the superfluous paint. Now comes the most difficult part of the operation, that of laying the wicking in the grooves, for, unless care is taken the wicking will fall out as fast as you put it in. However, a little patience and you will soon "get the hang of it." To lay the glass, set a small nail at the bottom and lay on the first pane with the bottom resting against the nail. Now nail it in with four shoe nails, the top two to be 1¼ inch from the top of the glass, to support the next pane and prevent slipping; each piece is put on in the same manner until the row is finished. The resulting roof is much better than where putty is used, as it will last for years without painting while glass set with putty should be painted every year, and also there will be no leaks if the work is well done. It is less expensive and is much quicker of execution. *Chattanooga, Tenn.*

COOL-HOUSE ORCHIDS.

BY GEO. C. BUTZ.

There is no other class of plants deserving of so much comment in a popular periodical as that of the cool-house orchids; because there are many species of this class that deserve a much wider cultivation, and this can be secured to them most rapidly by repeated assurance of their easy culture. These are not plants for the wealthy only, who can afford a conservatory and an experienced orchid grower, but any lover of flowers, endowed with sunlight and shade, who understands the meaning of "rest" and "growth," can find members of the orchid family which will respond freely with their beautiful and curious flowers to a treatment much like that of bulbous Begonias. This is most simply stated thus: moist and warm during growth, dry and cool during rest, with a temperature not less than 50° in winter or more than 85° in summer.

I have in mind at the present time various plants which have received just about such simple treatment. Among these a Cypripedium insigne, but a few years old, which has been blooming every year, and this season produced upwards of twenty flowers, lasting from the middle of November last till the 1st of February. The flowers of this Lady's Slipper are attractive because of their peculiar structure, apart from their floral beauty.

Another plant of the above group is that of Lycaste Skinneri with but three flowering bulbs showing in all fifteen flowers and buds. No description can convey a satisfactory impression of the beauty of orchid blooms to one unacquainted with their forms. If we can conceive of an aristocracy in the vegetable kingdom, it certainly is inherent in the orchid family.

The beautiful Coelogyne cristata with its pure white undulating petals and sepals, and a solitary yellow blotch in the throat of the lip, should not be ignored in the smallest collection. Then, we can safely say, that with two or three such plants to begin, inspiration will soon increase the number. *Newcastle, Pa.*

SEEDLING BEGONIA.

BY H.

I noticed last summer a number of Begonia seedlings which I planted, as they were crosses between "semperflorens rosea" and "Schmidti." I have it now in bloom with a white flower slightly tinged pink, it being literally full of flowers from every joint. It grows well whether dry or wet. The leaf is most luxurious, resembling "Schmidti," rather larger. It beats any other Begonia we have, in blooming. It is quite distinct from either of its parents. Not more than one-twentieth of the seedlings resemble semp. rosea, and none Schmidti. *Jacksonville, Ills., Feb. 11th, 1884.*

EDITORIAL NOTES.

THE FLORAL EMBELLISHMENTS OF A STATE DINNER.—A Washington paper says: "The state dinner given Feb. 14th by the President was named for half-past seven, but it was not until eight o'clock that the party left the East room, where they were received by the President and Mrs. McElroy. The long table at which were placed covers for forty-eight was arranged with 'T's.' As the dinner was given to the Justices of the Supreme Court and Judges of the Court of Claims all the decorations of the table were of appropriate designs. Along the center, some four or five feet long, there was a floral 'Temple of Justice.' The sloping roof was composed entirely of Jacqueminot and Tea roses; the dome of crimson and white azaleas, the architrave of clove pinks, while the supports were of smilax with clusters of lilacs. Underneath the 'Temple of Justice' lay an open book, on which, in large black letters, were the two words, one on each page, 'Law, Constitution,' with cut-flowers of every description loosely strewn about. At either end of the 'Temple' were the 'Scales of Justice,' composed of Azaleas, the chains of smilax, in which rested pans of carnation and heliotropes. In the middle of the cross-pieces at each end of the table were large circular plaques of roses, over which poised an open umbrella of lilies of the valley. Conserves and bonbons were placed at intervals, interspersed here and there with pyramids of ices and jellies, over which poised, with outspread wings, the 'American eagle.' Upon the right of the President sat Mrs. Waite, wife of the Chief Justice, with Mrs. Miller assigned to the left. Directly opposite was Mrs. McElroy, at the right of whom Chief Justice Waite was seated, and to the left Justice Miller. The mantels in the dining-room were banked with Easter lilies, hyacinths, scarlet and yellow tulips, with a deep overhanging of fringe grasses."

PHALÆNOPSIS SCHILLERIANA.—Of the February meeting of the New York Horticultural Society, its Secretary says: "We shall not attempt to enumerate the many notable exhibits, a full list of which will be found in the report of our committee, but we cannot in justice overlook the display of Orchids from the houses of Vice-President Dinsmore at Staatsburgh, all of which were superb; but from the collection we single out the Phalænopsis Schilleriana, six spikes in all, making up the largest and finest exhibit of this truly regal Orchid ever seen in New York. They betrayed the hand of a skillful cultivator in every one of their 246 flowers, all being perfect, and all making up a strikingly beautiful picture."

AZALEA MOLLIS.—This is found to force fairly well by the New York growers. Some have had them in bloom by New Years.'

DENDROBIUM WARDIANUM.—Mr. Taplin of Maywood, N. J., had a specimen of this beautiful orchid, with a spike 18 inches long, at the January meeting of the New York Horticultural Society.

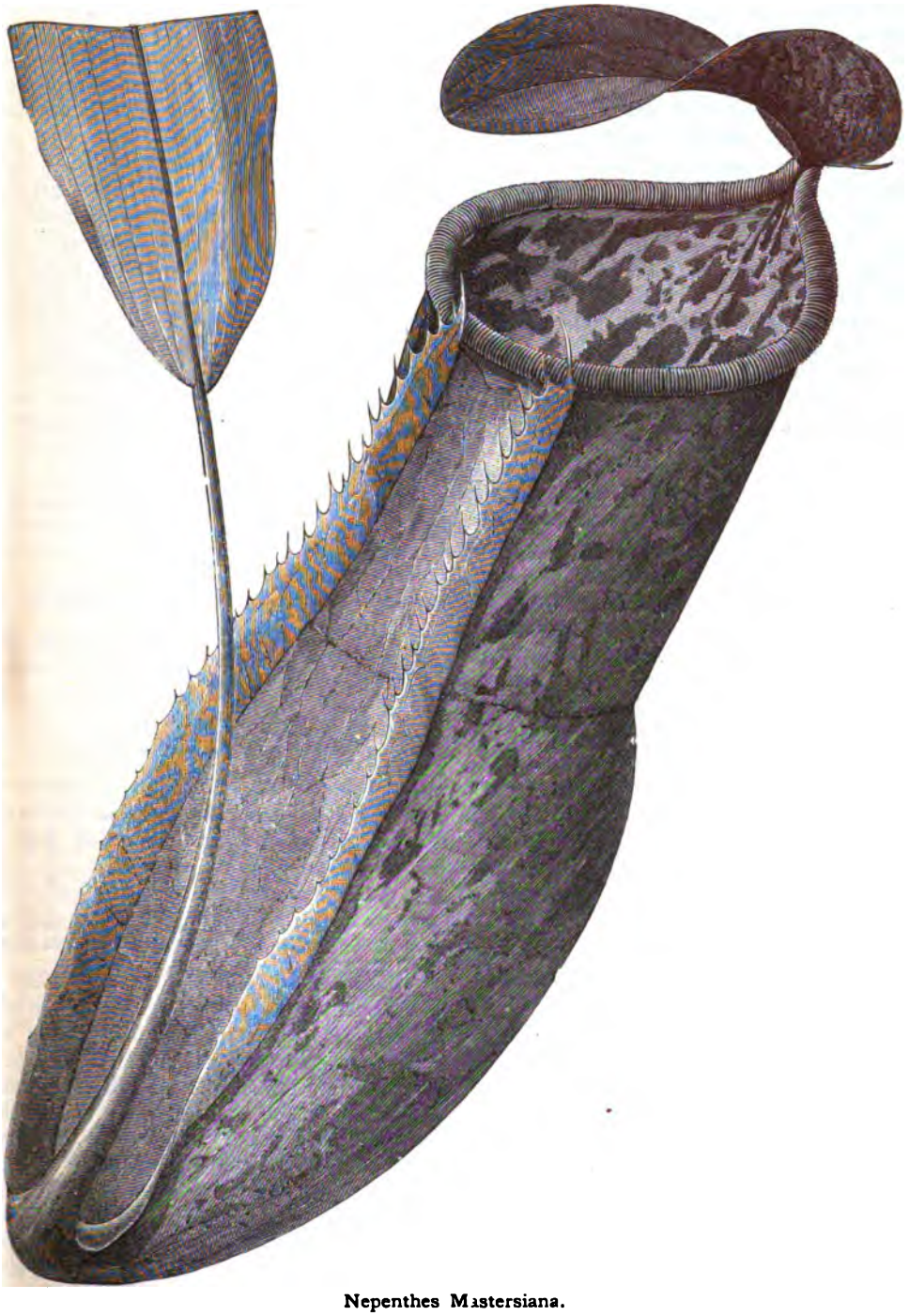
GLADIOLUS FLOWERS.—They are trying in England who can raise the best gladiolus. One man asserts that he had fourteen flowers open at one time on a single stalk, and dares others to beat that if they can.

NEW OR RARE PLANTS.

NEPENTHES MASTERSIANA.—We gave in our Natural History column for February, some account of one of the curious East Indian pitcher plants, both as a matter of interest to all lovers of flowers, as well as of interest to those fond of science. We now give some account of another which will particularly interest the admirers of floral novelties. It was raised by Messrs. Veitch & Son, of Chelsea, England, who furnish us with the following account of it:

"This is indisputably the finest hybrid Nepenthes yet obtained. It was raised by our foreman, Mr. Court, from N. sanguinea and N. distillatora, Glasnevin variety (N. Khasiana of science), the latter being the pollen parent. The pitchers are as richly colored as those of N. sanguinea, but easily distinguished from that grand species by their having the characteristic blotches of N. distillatora (N. Khasiana), on the deep claret or blood-red ground of N. sanguinea. In form they are cylindric, slightly distended below, and con-

tracted above the middle, where there is a rib or prominence; they attain a length of eight inches, and wings are rather broad, irregularly and sharply toothed at the margin; the aperture is rounded



Nepenthes Mastersiana.

a breadth of two, dimensions that will doubtless be exceeded as the plants increase in strength. The and only slightly produced at the back, instead of the elongated triangular process of N. sanguinea,

'and is surrounded by a clear shining red, closely ribbed margin; the throat is pinky cream colored with red spots.' The lid is altogether that of N. Khasiana, suborbicular, convex, covering the mouth, and with a simple spur at the base.

"The above description shows that this hybrid is quite distinct from every other Nepenthes in cultivation; it has also the additional merit of being vigorous in constitution, and at the same time dwarf in habit. A pitcher is produced from every leaf, and presents, in its rich coloration, a striking contrast to the pale green of the blade and stem. We have much pleasure in associating this fine acquisition with the name of Dr. Masters, as a slight recognition of his invaluable labors in the cause of horticulture. It received the award of a first-class certificate from the Royal Horticultural Society, June 13th, and a certificate of merit from the Royal Botanic Society, July 5th, 1882."

AZALEA, MISS BUIST.—One of the last of the many beautiful new plants raised or introduced by the late Robert Buist, was this azalea, named by him for his daughter Miss Helen. The stock was disposed of to an English florist just before his death. A correspondent of the *Gardeners' Magazine*, thus notes its behavior in the Old World:

"Whether the azalea which has been recently introduced under the name of Miss Buist will equal those old favorites, Fielderi and Indica alba, for supplying the markets with flowers during the winter, I cannot undertake to say. But from my experience with it during the past two seasons I am persuaded that it is a valuable addition for the private gardener. It has a very neat and compact habit, and when well grown, flower buds are produced at the point of every shoot. The flowers which are produced in clusters of three or four each, are of snowy whiteness, waxy in texture, and rather small in size, averaging perhaps an inch in diameter. For bouquets they are in some respects preferable to those of the other azaleas mentioned. There yet remains to be mentioned another good quality, and that is, earliness of flowering. Plants that make their growth in the spring may be had in bloom with a very moderate amount of fire heat in November, and by introducing a few plants at intervals a succession of the very acceptable flowers may be obtained throughout the winter. This variety, which, I believe, was introduced from America, is a capital companion to Mrs. Gerard Leigh and others of the same type distributed six or seven years since."

BOUVARDIA SCABRA.—This novelty is an exceedingly attractive and pretty species, and one of the handsomest of the genus. It is a valuable acquisition as a decorative plant at this season of the year—the flowers, which are larger (½ inch in diameter) than those of most of the other species of Bouvardia, being of a bright cheerful pink color, and very freely produced. The plant grows 12—18 inches high, and has terete, hairy, herbaceous stems, with distant whorls of ovate accuminate leaves, narrowed at their base into a very short petiole, generally three, rarely four in a whorl, subscabrous on both surfaces, the midrib and veins very prominent beneath, the lower leaves 2—3 inches long, 1—1½ inch broad, the upper gradually smaller. Flowers in dense corymbose cymes; the pedicels, bracts, and calyces pubescent; calyx lobes subulate, recurved, spreading, 3—3½ lines long; corolla glabrous, the tube 10—12 lines long, marked with four grooves at its apex, whitish; limb of four spreading, broadly elliptic-ovate, subacute, bright pink lobes, throat or tube whitish. It is a native of Mexico, where it was first discovered by Hartweg. The characters which mark this elegant species, are the prominent veins on the under-side of the leaves, the long, slender squarrose calyx-lobes, and the broad spreading lobes of the corolla.—*Gardeners' Chronicle.*

SCRAPS AND QUERIES.

THE JANUARY TEMPERATURE AT SARATOGA, N. Y.—Mr. Terwilliger says: "From observations made at the Terwilliger South street greenhouses during the month of January, 1884, the following interesting table has been compiled:

Jan.....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Regs...	18	18	18	-2	-10	-22	-24	-14	10	20	16	-4	-10	24	-4	-24
12 m....	38	36	24	8	12	10	10	10	44	28	32	34	24	31	4	-4
6 p. m..	26	26	20	0	2	6	0	12	22	20	20	-2	20	23	2	8

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Regs.....	2	14	8	2	-20	-6	14	24	0	-26	-14	0	16	22	23
12 m.....	20	36	10	14	16	16	34	8	8	8	8	16	30	30	38
6 p. m....	18	32	2	2	6	14	20	4	-6	-2	-4	12	22	30	30

"The weather report for January would not suit florists of your locality, very much, I am thinking, especially when the fact of a strong wind almost always accompanied the mercury when it got near zero. Parties that figured for "steam" up this way would find that they needed more piping and more power in the boiler, than places where zero weather is the exception."

[We are a trifle better favored at Philadelphia. 4° above zero has been our lowest. From 10° to zero is about as low as we reach in any winter; though once in a while it may drop a little below for an hour or so. We have heard little complaints of heating apparatus of any kind, so far.—Ed. G. M.]

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

Why the sap ascends in trees is yet a mystery. All attempts to solve it by mechanical or chemical laws have failed. At one time we think we have it when some good man talks to us about what he calls "root pressure." Then, some other tells us about osmotic action, and we get learned disquisitions on the power of endosmose and exosmose. Again, another gives us an explanation of the manner in which starch is converted into sugar, and the tension which occurs during this change acting as a pump to pull up the sap. But the orchardist, with his every-day experience, always feels that the philosopher has left out something in the calculation, which he at least is not permitted to forget, namely, plant life—and though the man of science may ask him what he means by life, or to explain what he calls vital power, he can only say that he does not know, but he is sure there is a something which he may call this, though science has not been able to get near it. The orchardist knows that a half dead tree does not draw up sap as freely as one in vigorous health, nor does a half dead branch act as freely as one with full vital power. Now, a transplanted tree is in some sense a half dead tree, and the proof is, that in a dry time, or a hot time, or a cold time, or under any unfavorable circumstances, the chances are two to one in favor of an untransplanted tree getting through. The only reason that it is half dead is, that the sap does not ascend as freely as it ought to do. The leaves push slowly, and the growth is feeble, simply because the sap does not ascend as it should do. Now we must help the tree to do this if we would have the best success in transplanting. As a rule, the healthier parts of the tree, those parts near the ground, get disgusted with the attempt to pass sap through the sluggish cells above, and push out sprouts along the stem, or suckers from the roots, and these will soon manage to get all if left alone. It is therefore essential to the well being of any tree with a weakened top, that every sprout should be taken out as soon as it appears. This applies not only to trees with a weakened top from transplanting, but from grafting, budding, or any other horticultural operation. Watch all such trees, as soon as they leaf in spring, and take out every sprout from trunk or leading branches as soon as they appear.

In grape raising people seem to go to extremes in management. A few years ago the poor plant was in leading strings. It dared not make one free growth, but it was pinched and twisted into all sorts of ways. Now the "prune not at all" maxims are getting headway, and this is as bad, if not worse. First, grape growing was such a mystery it took a life time to study it, and the "old vigneron" was an awfully sublime sort of a personage. He is now among the unfrocked and unreverenced. But there is great art in good grape treatment; and yet this art is founded on a very few simple principles. For instance, leaves are necessary to healthy growth; but two leaves three inches wide are not of equal value to one leaf of six inches. To get these strong leaves, see that the number of sprouts be limited. If two buds push from one eye, pinch out the weakest whenever it appears. The other will be strengthened by this protective policy, and the laws of trade result in favor of larger and better leaves on the leaf that follows. Allow no one shoot to grow stronger than another. If there are indications of this, pinch off its top. While it stops to wonder what you mean by this summary conduct, the weaker fellows will profit to take what properly belongs to them. There is little more science in summer pruning than this; but it takes some experience, joined with common sense, to apply it. This, indeed, is where true art comes in.

The apple is our standard fruit, and may always be relied on with reasonable care. The first care is good food. Some talk about too rich soil. We never saw the soil too rich for the apple. Where any trouble arises in apple culture, it will be safe to attribute it to other causes than rich soil. Kitchen ashes, in which table refuse is thrown, is an excellent top-dressing for apples. We like top-dressing better than any other system of manuring apple trees. Even nice ditch scrapings are good to top-dress with where nothing else offers. Apple trees are often starved in other ways than by neglect to manure. The apple borer leads to starvation oftener than poor soil. The supply of food is cut off by every move the borer makes.

They work at the surface of the ground. Look for them now. If you have no time, set the boys and girls to work. Say they shall have no apples for Christmas or birthday presents if they do not. However, get the borers out somehow, if even by wire and jack-knife. If not soon done they will soon get out themselves, and give you more trouble in the future. After they have left, whether by your invitation or otherwise, keep them out; even though you have to lock the door after the horse is stolen. Paper put on in May, and then gas-tarred, will keep them out; some say it will not, but it will. There is no doubt about it. One papering will last three years. The weakening of the tree by the borer is why the fruit drops off in so many cases, and is small and scrubby in others. With these cases attended to there will be little left to worry one but the codling moth.

COMMUNICATIONS.

CELERY—"WHITE PLUME"

BY PETER HENDERSON.

In reply to Dr. Loring W. Puffer's doubt, that the White Plume celery "will not be of the same flavor as that grown in the old and troublesome way," I will say that although this new celery blanches entirely white without the air being excluded from it by banking, or any other process, yet it is found necessary to either draw as much soil to it as will prevent it from spreading, or else to tie each plant about the center for the same purpose. This we have found is all the work necessary to render it fit for the table. I grew over 10,000 roots of it last season, and we tested it by tying it up with matting ("handling"), and drawing the earth to it (the process preliminary to banking the old sorts) and found it equal in all respects, thus treated, to the best kinds of the older sorts that had been blanched by banking in the ordinary way. This was not alone our own opinion but scores of experts in celery, calling at our grounds to see it, came to the same conclusion. In fact, to test the matter fairly the leaves of the blanched stalks were taken off both sorts, and when mixed together they could not be distinguished, the flavor of the other kinds and the White Plume being identical, or so nearly so that they could not be separated. But one reason why some may not have thought the flavor as good was, that all the samples we sent out were sent early in the season, before cold weather set in, and every one who has had any experience in celery knows that the flavor of any celery is never so good in early fall as in winter. My first opinion from the appearance of the plant (one-half at least of it being white) was, that it would be of little use as a winter celery. In this we have been most agreeably mistaken, for in over 5,000 put away in trenches in the usual way, up to the middle of February less than one per cent. rotted, and it kept in as good condition as the old kinds put away in the same manner. If it does as well under general cultivation as it does here, there is but little doubt that it will soon be grown to the exclusion of all other sorts. Moreover, it will greatly extend the culture of celery, as no experience is necessary to grow it more than that of any ordinary vegetable.

Jersey City Heights, March 6th, 1884.

NOTES ON NUT TREES.

BY E. H.

I noticed in February number of the MONTHLY some interesting queries and notes on nut trees, and I wish to add one more in regard to the English walnut, and more especially the Præparturiens. I have two trees of the English walnut. The seed was planted where they now stand about the year 1864. The larger one measures forty-two inches in circumference three feet from the ground and is a very handsome tree. They have been bearing about four or five years, and last year bore a market basket full.

Would the J. præparturiens be as hardy, and would it be likely to bear well here? I see in January number, 1882, a California correspondent speaks very highly of it, and as likely to supersede the English walnut there, and I have seen it spoken of as hardy and reliable elsewhere. Your correspondent, "S. A. W.," asks about the Filbert. I know of some trees very near me that seldom fail to bear plentifully. They are quite old trees.

I have three noble trees of the Spanish chestnut on my lawn. The largest one measures in circumference seven feet eight inches. They bear regularly and plentifully, but are badly infested with worms—some seasons very few of the nuts being fit to eat. I found beneath one of the trees a peculiar-looking curculio, having a very long snout, and this I take to be the chestnut weevil. I intend, however, getting the species identified. This is the great drawback in their culture here—with me, at least. *Moorestown, N. J.*

[No doubt the early-bearing walnut (Præparturiens) is as hardy as the parent species.—Ed.]

PEACHES UNDER GLASS.

BY T. B.

If you think the following mode of growing and forcing standard peach trees under glass worthy of publication you are welcome to it. It may be of interest to some of your amateur readers. It was new with me about twenty-five years ago, and as I have never seen the subject written upon with regard to standard peach trees, and this plan worked to perfection with me, this is all the apology I have to offer. I thought it a great pity to have to wait several years for the young trees to come to perfection under glass, and found good fruit in abundance could be had within a few months from the time of planting in large tubs.

You know the old plan of planting a maiden peach in a pot for a season, then shifting it into a larger; then into a small tub, then into a larger one, thus taking up about four years before you can have any peaches worth notice. This I looked upon as useless expenditure of time. Peaches to be forced I find are best grown out of doors in good, clean, rich ground until they are tubbed in the fall and ready for bearing the following spring. They must be kept neat and healthy, and made shapely by pruning until they have come to a good bearing state. Then they can be lifted in the fall, put into their tubs and forced the following winter and spring to good advantage. They will yield a good crop with very little trouble. A peach tree may be forced in an ordinary greenhouse wherever room can be found.

The plan is this, upon which the chief success depends. About the middle of September, if the buds are well swelled, remove a little earth from the surface, then with a sharp spade cut downwards and partly inwards; this is to make them throw out fibres, which they will do quickly if the ball be kept wet; weak liquid manure water is best. At the same time the tree must be trimmed up nicely and the outer branches shortened a little. The cutting of the roots is to be directed by the size of the tub in which the tree is to be planted. From the 1st to the middle of October they may be put in their tubs; the ball will then be found to be a mass of white fibrous roots. They should be left out till late for the roots to ripen. The medium early peaches are best to force as the early ones I consider mostly too small. The drainage is easily performed. Bore from six to ten auger holes in each tub, cover every hole with an oyster-shell concave side down, level off with about one inch of fine gravel or coarse sand. A little frost seems to serve the trees before they are put in to force. Through blossom, leaf and fruit, weak liquid manure water is good. When in blossom it is good to shake the trees slightly to scatter the pollen. This is best done in the forenoon of the day. This plan pre-supposes young trees growing on the place and ready to force at the time they are wanting. If they be not there, there are few nurserymen, I presume, who cannot furnish such young trees ready to bear, and will prepare them for their customers on application. They may be removed a short distance without injury.

Chambersburg, Trenton, N. J.

CULTIVATION OF OSIERS.

BY A. M. WILLIAMS.

In Onondaga county, Central New York, the basket willow is cultivated and manufactured on a large scale, and is, in fact, a leading industry. The cultivation is increasing very rapidly, and is a great benefit to this and neighboring counties. The baskets made from this willow are better and cheaper than the splint basket, and raising the stock is found to pay much better than other farm crops, while the manufacture gives employment to hundreds of men, women and children, who would otherwise have nothing to do during the winter. These willows are grown on high land and on low land, on wet and dry land, and on very cheap land, and on land that is worth $1,000 per acre. The willow needs to be planted but once, and an average yearly crop can not be worth less than $100 per acre. As the timber suitable for baskets is getting scarce and dear, it is plain that the demand for willow will increase every year. In most parts of the country are Germans who understand working the willow, and it is a great benefit to them and to their neighbors to have this industry introduced. Not one farmer in a dozen has on his place as many baskets as he needs, for the reason that they are scarce and dear. This willow is the easiest thing in the world to raise, and yet we import from Europe $5,000,000 worth a year. About two hundred tons of willow are manufactured every year in one little village in this State. One man in Syracuse told me he would send to New York this winter one hundred and forty tons of peeled willow, mostly of his own growing. In all the large cities more or less willow is manufactured every year, and the amount thus worked in the city of Milwaukee is very large. This industry is a benefit to the whole community, and deserves to be encouraged; and

the West especially should take a deep interest in extending it. The fact that it gives employment to the poor during the winter, thus making comfort take the place of want, should exert a great influence in its favor. Here then is a means by which the farmer can put money in his pocket, and help his poor neighbor at the same time. I have no interest in this matter, as I do not raise, buy or sell, but I do know it has been a great blessing to our State. There is one variety grown here that is much preferred to any other, but I can not find out the true name for it. Even the man that brought it here does not know its name.

Long Island, New York.

APPLE NOTES FROM MONTREAL.

BY JAMES MC KENNA.

As I have seen from time to time several valuable hints from your pen, you would confer a favor on me and a number of my neighbors if you would prescribe a cure for the spot (mildew) on our Fameuse apples, as we have suffered severely from it the past two seasons on the north and west slopes of Mount Royal. Also, if it would be of any use to your readers, I have found out that the best destroyer for mealy bug is common laundry soap, used as a strong wash. I used one pound to eight gallons of rain-water on Bouvardias that were very dirty; it cleaned them, and I think it will keep them clean by applying it freely about once a week while any signs of them remain. Apply with syringe.

I would like to know if the double Poinsetta, lately introduced, is really an acquisition, and if it is really double; because I have seen a few plants imported for double, and I could see no difference between them and the common single. I think we grew some good Poinsettas here this season, some measuring 17¼ inches from tip to tip.

Cote des Neiges, Montreal, Can., Jan. 13th.

[We have no knowledge of any trouble specially affecting this variety. When in Montreal a few years ago, and examining gardens on Mount Royal, no mention was made of it.—Ed. G. M.]

EDITORIAL NOTES.

GRAPES FOR NEW ENGLAND.—Mr. Wood tells the Massachusetts Horticultural Society that even the Concord grape fails to ripen once out of every four or five years in New England, and therefore earliness is one of the leading essentials for a grape for that section.

THE PHYLLOXERA IN AUSTRALIA.—This much dreaded pest of the grape grower has at length found its way to Australia. It has been found on the roots of some grape vines there.

FIGHTING THE PHYLLOXERA. — The French government appropriated $250,000 towards aiding the French vine growers in fighting the Phylloxera, and has promised a similar sum for next year. It shows the importance of the grape in French industry.

FRAUDULENT PACKING IN APPLES.—Not long since we copied from the *Garden* a statement that while the Canadians did honest packing, American apples came with the best fruit only on top of the barrel. It appears now that the Canadians did not learn their honest ways from the old folks at home, for by a recent correspondent of *Garden*, we learn that the English packers beat us "all hollow." Indeed it now says "American barrels of apples are all through alike good, and buyers know exactly what to give for them, but on our English produce no such confidence can be placed; that has to be carefully inspected. This season, owing to the scarcity of the American crop, English growers have the market pretty much under their own control; but such practices as those to which I have just alluded are not likely to bring home-grown fruit into favor."

HEIGHTS OF PEAS.—We think, as a general rule, those peas which are tall enough to require stakes yield the most, and on the whole are the best for small gardens. But stakes can not always be easily had, and then dwarfs are in demand. For such, the following table of the average heights of the more popular varieties will be useful:

Varieties.	Height.	Varieties.	Height.
Excelsior	24 in.	Little Gem	20 in.
First and Best	20 "	Stratagem	18 "
Early Sunrise	22 "	Telephone	36 "
Imp. Dan O'Rourke	18 "	Dwarf Marrowfat	40 "
American Racer	24 "	Champion of England	60 "
American Wonder	8 "	Yorkshire Hero	30 "
William Hurst	12 "		

WHITE DOYENNE PEAR IN OHIO.—At a recent meeting of the Montgomery county (Ohio), Society, Mr. Albaugh said that the old favorite, the White Doyenne, was again showing its pristine excellence, being quite free from all imperfections. We have been all through this hopeful stage in the East. Every now and then there has been a glimmer of recovery, but hope soon died out. Fortunately there are pears quite as good as the White Doyenne without its disease, and we recommend those who yet have this variety to graft the trees with a healthy sort.

A WHITE BLACK CURRANT—is among some recent announcements.

THE ENGLISH GOOSEBERRIES.—These very fine fruits succeed fairly well near Boston. Mr. Benj. G. Smith grows them very finely. They are more inclined to mildew than the native kinds. It is a pity. Their fine size and delicious flavor are very attractive qualities.

EVERBEARING MULBERRIES.—We believe the two leading mulberries popular for their fruit in this country, are varieties of the Morus alba. These are the Hicks and the Downing. Mr. Felix Gillette, of California, has introduced a variety of the European Black mulberry, which he says bears in that country from July to October. As the fruit of the morus nigra is perhaps the best in flavor of all the mulberries, this ought to be a good addition to American fruit lists. He calls it Noir of Spain—Spanish Black.

PROFITABLE VEGETABLES.—Mr. Hunt, of Concord, Mass., believes that there is little profit in the market culture of any vegetable about Boston, but such as will yield two crops a year from the same ground.

WHITE PLUME CELERY.—We note that Vick's *Monthly* says that the seed of the Chemin celery is to be offered in this country this spring, under the name of "White Plume." We have no evidence that these two kinds are the same, and we should fear that such a mixture of names will lead to trouble.

WHITE ASPARAGUS.—It is a well known fact that while the white part of asparagus is usually tough and uneatable, white asparagus is sometimes tender and delicious, and many would like to get it in that way. Col. Wilder says the French get it by piling manure thickly on the beds—and it has been observed in this country, that when the roots are planted deep in loose ground, the white part is softer than when the plant is set not far beneath the surface.

TOMATOES IN ENGLAND.—This delicious vegetable is beginning to be appreciated in England and the merits of some of the best American varieties are being spiritedly discussed. "Only think, says an English paper," "What of Tomatoes twenty years ago in comparison with Tomatoes of the present!"

THE COMO ONION.—French catalogues tell us that this is a "precious introduction," and a "very pretty bulb." This ought to be good commendation, but the advertiser goes on to say that it is "excellent," and "very good"—and all this in a mere onion! Our laudations of strawberries and such other good fruits are surely excusable after all this.

HORSE RADISH.—The best way to get Horse Radish is to prepare a very rich piece of ground. Get very strong roots and cut them into pieces of half an inch in length or so. Make a hole with a crow-bar or stake, so that the piece of root will be at least a foot from the surface. Then fill in the hole. The root will grow up through to the surface, and make a clean, straight root in the future.

SCRAPS AND QUERIES.

BUDDED PEACH TREES.—"Burt" desires to know if we regard budded peach trees as less hardy than trees which have been suffered to grow up from the stone without budding. As in the case of his asparagus question, we have to say both yes and no. Buds for propagation are often taken from trees which by reason of improper treatment have a low vital power. Such budded trees are not as hardy as an unbudded tree. But if the scion has been taken from a tree which has not been weakened by injudicious treatment, such tree would be as hardy as any seedling, and considerably better for the cultivator in this, that he knows he has just the kind he wants.

ROOT PRUNING GRAPES.—"Subscriber," Sharon, Pa., writes: "I have been advised to cut the roots around the grape-vines in a grapery, at a distance of two feet from the vine, to make them bear more grapes. Have I been rightly advised?"

[When any fruit tree is growing with more than usual vigor, and it does not bear as much fruit as it ought to do in consequence of its over luxuriance of growth, it may be rendered more productive by root pruning. Beyond the statement of this general principle, we could offer no special advice. Perhaps our correspondent after looking at the growth of the vines can judge.—Ed. G. M.]

IMPROVED ASPARAGUS.—"Burt," says: "In a conversation with another gardener lately who was talking about varieties of asparagus, I contended that there could be no improved variety of asparagus, because the sexes being on separate plants, no one plant could perpetuate its own peculiarities. Am I right or wrong?"

[Both right and wrong. As you say, there cannot be any one variety, as there are in plants which

have both sexes in the same individual, or which can be perpetuated by grafts or cuttings; but there can be improved races though there may not be improved individual varieties, just as there are improved races of cattle or breeds of poultry. And you may very nearly get a new variety by selecting a male and a female parent in an asparagus bed as nearly alike as two peas, and by planting them together away from all other plants. It would however still be but a race or breed, and not a variety. As the question would usually be understood, the answer would be in your favor, that there is no such thing as a distinct variety in asparagus.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

TREE PLANTING IN DAKOTA.

BY GEO. H. WRIGHT.

On page twenty, January number, editorial notes, there appears an article under the head of "Forestry in Dakota," criticising the manner in which the tree planting along the line of the Northern Pacific Rail Road is carried on. In June, 1883, I was requested by Gen. H. Haupt, then General Manager of the Northern Pacific R. R., to make a personal examination of the work of tree planting being done by the company, and report the condition in which I found the same, and if not in accordance with my experience, to recommend remedies for correction of errors made. July 2nd, I reported the work a failure. My report covers the points you make in your criticism, and more fully goes into detail. I also apply the remedies for successful forest growing for that dry climate. September 1st, I took charge of the tree planting for the company, and prepared the land to be planted this coming spring. From the present plan of retrenchment adopted by the company the work will probably be abandoned the present year, which will practically end the work, as an abandonment of one year will abrogate all that has been done in the past. With proper preparation of the ground, with the right varieties of trees, in first class condition, and well and properly planted and cultivated, forest trees can be grown in northern Dakota as well as in Iowa or any other prairie state or territory.

Sioux City, Iowa.

[We are glad to find that Western foresters are alive to the endeavor of showing that this miserable failure should not operate against general tree planting in Dakota. As General Haupt's name has been mentioned, we are the more surprised that the company should have been led so unintelligently into a scheme which, by its failure without explanation, would act so disastrously to its own interests. General Haupt is an old Philadelphian, and was at one time a successful amateur horticulturist, and certainly knows the difference between good planting and bad. It was probably the pressure of a tree peddler, under which the strongest man sometimes succumbs, that led the company into a scrape like this.—Ed. G. M.]

WHITE AND BLACK SPRUCES.

BY R. DOUGLAS.

In the February number of the MONTHLY you say, "We are a little uncertain what is meant by white spruce. The white spruce of nurseries is the black spruce of botanists, and the white spruce of botanists is the black spruce of the cultivator," etc. I hope for once that you are somewhat mistaken, otherwise both you and I have wasted a great deal of time during the past twenty-five years.

More than twenty-five years ago a dispute arose at a horticultural exhibition in Chicago regarding three apparently distinct specimens of spruces, a branch and cone of each being on exhibition. Dr. John A. Kennicott, the pioneer of Western horticulturists, requested me to send these specimens to the Editor of the GARDENERS' MONTHLY and abide by your decision. I did so. You decided that the long slender cone was the white spruce, A. alba; the other two, different forms of black spruce, A. nigra. At that time there were more native than foreign spruces in the Western nurse-

ries, and the glacous black spruce was commonly supposed to be the white. But the mistake was soon corrected without the cones, for I called the attention of Western nurserymen to the odor of the white spruce, so that they could not be mistaken. Not only did I call their attention to it in horticultural meetings, but also when visiting nurseries, and I think there is no longer any confusion in the West. It is a surprise to me that this confusion should still exist in the East. I do not see why any nurseryman should introduce a black spruce into his nursery; still a few might be used to make up a variety, but otherwise it is worthless, owing to its uniform habit of shedding its foliage on the lower branches, even when quite young and before it leaves the nursery. They can only be secured in the woods, for none have been grown from seeds in the nurseries. I should not say none, for we have grown a few to see if the two kinds of black spruce (the glacous and the red) would come true to their kinds. We have sent out some of the red, as we consider it a very fair tree, but we never sent out one of the glacous black. We have shipped white spruce seedlings East these twenty years; so I think I have said enough to convince you that when I say, white spruce, I mean Abies alba, Picea alba of England. I do not think the red variety of the black spruce can be found in our Western forests. I have never seen it except in the Eastern forests and in nurseries, and in every case where I have made inquiries of Western nurserymen they have come from the East. The glacous variety of black spruce—our Western kind—I have invariably found in low swampy ground, or where the ground had undoubtedly been swampy at the time when the trees were young; but the white spruce, although found in low damp ground, does not succeed in wet ground, but may be found high up in the hills. *Waukegan, Ill.*

PECANS IN THE NORTH.

BY N. HALLOCK.

I notice at this late date a query as to pecan nuts: Can it be fruited at latitude 41° or 42°? I have a pecan on my place, about forty years old, two feet diameter at the ground, a fine stately tree, not of thick foliage though. It has lots of fruit on every other year, but, alas! they never ripen. I am fourteen miles from New York city. Another tree of my neighbor serves him the same way. Guess it is N. G. Has the Japan chestnut been fruited here, and is it hardy? I have seen it in bearing in nursery rows at six feet high. Some of mine had the male flowers on second year from grafts; seems more hardy than the native stock on which it was grafted. It makes a very pretty dwarf tree, and the fruit is very nice and sweet.

Creedmoor, L. I., New York.

PROFITABLE EUCALYPTUS GROWING.

BY WM. T. HARDING.

It appears the Eucalyptus, or Australian gum tree, at last, after having been highly extolled by some, and sadly disparaged by others, according to the different views each entertained of its character, has recently been reported as a valuable timber tree for firewood, in California. And the statement made by "an Anaheim farmer," whose actual experience of its highly profitable cultivation, is worth more than a great deal of vague theory, proves it to be one of the most remunerative sexennial crops, possible. From the well known rapidity of its growth, after a grove is planted, it probably requires less attention from the planter, than anything herbaceous or ligneous we know of. And I think no one will dispute the assertion, when it is shown that the gross profits from six-year-old trees, set out in a six-acre grove, realized $2,400, when cut down for fuel, it augurs well for Eucalyptus growing. See, page 20 in January MONTHLY. It is also said to make excellent charcoal. That it should not be rated of equal value with walnut, live oak, ash, or the various kinds of pine, for general purposes, or with oak, hickory, beech, or maple, for firewood, does not prove it to be entirely worthless for domestic uses, as some would have it.

Again, in the last month's magazine, the Editor presents a communication from the well known intelligent horticulturist, Mr. Isaac Collins, of Hayward's, Cal.; which strengthens the writer's faith in the merits of the tree. Evidently, it is an excellent kind to plant where wood is scarce, and timber of quick growth is in urgent demand.

During the writer's residence in Australia, he never heard it so unfavorably spoken of as he has in this hemisphere; but on the contrary, has often heard carpenters and cabinet makers condemn the wood-work imported from Europe, where it was worked up into window frames and sashes, doors, wagon and carriage wheels, furniture, &c., and afterwards shipped there. The extreme heat and dryness of the climate, was said to cause foreign timber to warp and shrink so much. Although, at the same time, native kinds were not

so easily worked, on account of their being so cross-grained, and intensely hard, as are the many excellent kinds of this country. For durability, and resistance to the teredo worm, when used for piles in wet places, or about wharves, or docks, it is considered nearly equal to East Indian teak wood, Tectona grandis.

Of the therapeutic properties attributed to it in cases of diphtheria, fever and ague, etc., I personally know nothing. But it is very likely, from its immense absorbent powers, to be capable of drying up marshy grounds, and so convert unhealthy localities into more salubrious habitats for man. Out of the somewhat large genus of Eucalyptus—possibly no other than the peppermint tree, E. piperata—is made a pleasant camp fire, the agreeably perfumed smoke of which effectually disperses the dense clouds of tormenting mosquitoes from around the traveler's bivouac, as long as a stick holds out to burn.

As so many Australian plants seem to flourish in California, I feel surprised at not hearing of the successful cultivation of the remarkable broad leaved conifer, the Kauri pine, or Dammara Australis. Ever since your wandering correspondent first saw it in a wild state, in New Zealand—possibly, the identical trees which astonished Captain Cook, and his scientific associates, in 1769—he has always taken an interest in them. And the writer, on a former occasion, described them as curious straight stemmed trees, of one hundred and fifty feet high, and upwards. In the old groves, they are remarkable for the absence of any side branches upon their singularly smooth lead-colored trunks, which appear never to have had any lateral growth, as no marks are visible where they had previously been. Although, a proper cone bearing tree, its peculiar veinless leaves, in breadth half an inch, and length one and a half inches, have a more striking resemblance to the enlarged foliage of Buxus latifolia nova, or those of Laurus camphora, than pines. The Dammar, or Kauri gum, of commerce, is now found in a fossil state, in New Zealand, where at some remote age, huge trees must have stood, and while gradually yielding to "the touch of the destructive fingers of Time," the imperishable gum, or resin, was deposited in the soil, within the hollow the decaying roots made for it; and thus, it is preserved for our use now.

Perhaps the Editor, who has been in California since the writer was there, will be kind enough to inform us whether the singularly beautiful Norfolk Island Pine, Araucaria excelsa, and its beautiful Australasian congeners, and the gorgeous Warratah, Telopia speciosissima, Dammar Pine, Cunninghamia, Flindersia, Stenocarpus, and Oxleyas, grow as vigorously there, as does the Eucalyptus. Some twenty-five years ago, there were a few small ones planted out in the neighborhood of San Francisco and Oakland, where also might be seen a choice variety of pretty Australian shrubs, growing with equal vigor to the indigenous flora.

Mount Holly, New Jersey, March 3rd, 1884.

EDITORIAL NOTES.

FORESTS AND RAINFALL.—It is not so many years ago since the Editor of this magazine stood almost alone in showing that there was no evidence worthy of being called scientific to show that trees had any influence on the increase of rainfall; and in many instances he was roundly abused and held up to public reprobation as an enemy of forestry, because he ventured to differ from what then seemed to be the rest of the world. In the light of this chapter from history, it is interesting just now to observe how nearly universally writers are showing up this meteorological absurdity, and how such papers receive editorial endorsement. Aside from personal feelings of satisfaction, we are glad that these errors are being removed, for no cause receives any permanent advantage but from absolute truth. We believe that forests can be planted profitably in many places where good judgment is brought to bear on the problem, though we still believe, as we have always taught, that forests are the effect and not the cause of climate.

CHINQUAPIN.—What a pity it is that this delicious little nut should be so attractive to the "worms." The common chestnut is very liable to be wormy, but it is very rare that a single chinquapin escapes—at least so far as our observation goes. In nurseries plants have to be raised by sowing the seeds immediately when ripe, with every encouragement for the roots to push at once; for if left a few weeks there is nothing left to grow. It is almost impossible to send the nuts any distance with a chance of many growing afterwards. In New Jersey the bushes seldom get over five feet high, but in North Carolina the writer has seen them with trunks a foot through, and perhaps twenty-five feet high. On the hills about the battlefield of Gettysburg they are also of this height, but more as bushes than tree form.

WHY TIMBER DECAYS.—Intelligent people who follow what is written about the durability of timber must often feel puzzled, not only at what they read, but at what they see. For instance, the writer of this split up an oak trunk a few years ago, and one post made from this trunk was put in for a hitching post. A hundred yards from this another as a hitching post was also placed. After about ten years, one rotted completely away; the other is sound and solid as ever, and will probably last ten or more years yet. There is not the slightest difference in the quality of the wood, as both are from opposite sides of the same trunk, yet, if different people had this wood to test, how different would their reports be.

What is it which causes destruction in timber? Some say fungus—that is mildew or moulds. But in Mexico they dip oak railroad ties in creosote, which is destructive of all, even the lowest, forms of vegetable life, yet they are found decayed and worthless in four years. In our country we have had the same experience with gas tar. At one time it was a common practice to use this substance to paint wood, under the impression that it would destroy all decaying tendencies; but experience has shown that tarred wood, especially when the sun shines on it, decays faster than when nothing whatever is used to preserve it. The decay of wood is evidently due to chemical action—and if we can only find out just what these agencies are, we may have in our hands the power to make any wood durable.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

HISTORY OF HONEY-DEW.

BY DR. EZRA MICHENER.

A stray ray, reflected from the Academy Natural Sciences, in *Friends' Intelligencer*, brings the remark, "That, so far as he (Thomas Meehan) knew, Dr. Hoffman, who in 1876 published a paper on the subject, is the the only scientific man of note who takes ground against this view (that honey-dew is the work of insects)." Dr. John Mason Good, in his great work on the Study of Medicine, when treating of Parura mellita diabetes, has this remark, vol. v, page 349, "A similar complaint is to be traced amongst plants, though the author does not remember to have seen it noticed as such by any physiologist. What the diabetes, honey-water or honey-urine is to animals, the melligo, or honey-dew, seems to be to the vegetable tribes. In both, an ordinary aqueous secretion is for the most part increased in quantity, and constantly combined with a production of saccharine matter, and in both the effect is great debility, atrophy and emaciation of the vital frame.

"The plant usually recovers, because the coldness of the winter, that puts a stop to the natural actions, puts a stop also to those that are morbid. The animal usually dies, for in him there is no such regular cessation. But in evergreen plants, which suffer no winter torpitude, the disease is almost as fatal as among animals."

The analogy is more plausible than the cause which he assigns: "The honey-dew is in general produced suddenly, by a peculiar haze or mist, apparently loaded with a specific miasm or other material, poisonous to certain kinds of plants, though innoxious to others. The leaves, and often the stems, which it affects, as it creeps along, immediately throw forth an augmented secretion from their surface, more viscid, in texture; and, as just observed, considerably impregnated with sugar."

This matter settled, the extreme fecundity of the aphides, and their fondness for saccharine food, supplies all the rest. He tells of their great destruction of the hop crop on a special occasion. Such was the case wherever a hop vine was seen in this vicinity last year. The young hops were literally covered with aphides, and utterly destroyed. I had not observed the honey-dew to precede them. It had no doubt done so. Earlier, it had been abundant on my apple trees, where most of the primary growth of leaves became diseased, crisped and fell off. The aphis was not present. While I accept the melligo on the apple leaves as a morbid vegetable secretion, I do not find it so easy to decide whether the disease is primarily

seated in the foliage, and dependent on atmospherical changes, or constitutional in the general organism. It must also be an interesting inquiry, how far its production is connected with the earlier processes of fructification in the same or in other contiguous plants. Dr. Good appears to take precedence of Dr. Hoffman by no less than fifty-nine years. Please excuse the freedom.

Toughkenamon, Chester co., Pa.

HONEYSUCKLE APPLE.

BY PROF. W. A. BUCKHOUT.

The "Honeysuckle Apple," spoken of by your correspondent in February number GARDENERS' MONTHLY, is probably the monstrous growth of the flower bud of Azalea nudiflora. This common shrub is generally called "wild or mountain honeysuckle" here-abouts, and the large flower buds are very frequently malformed, dropsical and much enlarged by the attacks of a fungus (Exobasidium Azaleæ), first detected and described by Prof. Peck, of New York State.

Dr. Darlington has described the "honeysuckle apple," very well in his "Flora Cestrica," but he was ignorant of their cause. *State College, Pa.*

IS AGRICULTURE A SCIENCE OR AN ART.

BY RUSTICUS.

Much that is said and written on this subject now, is ambiguous and misleading, I think. Are we to define agriculture an art, and not a science; strictly a science, or made up of both? This pertinent enquiry will arouse varying responses. Opinions will be colored much by the degree of culture and learning of the respondents. I regard it as no easy problem. But its solution is rendered somewhat easier, in the present age, than it was centuries ago. When agriculture was almost entirely guess work, "firing at random," so to speak, neither of the above mentioned definitions would obtain. With the steady advance of knowledge, growing out of research, experiment, discovery, greater precision of statement can be made. A distinguished scholar has recently laid down the dictum that agriculture is an art, not a science. Shall we wholly accept his teaching? A study of the terms, art and science, will aid us in our determination. But first let us bear in mind that they are synonymous now. An expression is strictly a synonym of another expression, when the two "so nearly approach each other, that in many or most cases, they can be used interchangeably. Words may thus coincide in certain connections, and so be interchanged, when they cannot be interchanged in other connections." (Webster.) One of the synonyms of *art* is *science*. Art, of necessity, runs into science; science, perforce, draws upon art. The word art is derived from the Latin *ars*, denoting skill in execution, taken from the Greek, *apeir*, conveying like meaning. It involves the idea of doing, of accomplishing. "The employment of means to accomplish some desired end: the application of knowledge or power to practical purposes (*Ibid*). Now, this meaning, unquestionably, is alike to a certain degree, the meaning of science, that is, operative science, science in practice. Purely theoretically, there is a wide difference in the terms. Science implies speculative principles. Science comes from the Latin *scire*, to know, *scientia*, knowledge. Science is a complement of cognitions, having, in point of form, the character of logical perfection and, in point of matter, the character of real truth." (Sir Wm. Hamilton.) "The comprehension and understanding of truth or facts." (Dryden.) "Specifically, science is knowledge duly arranged, and referred to general truths and principles on which it is founded, and from which it is derived. Science is literally knowledge, but more usually denotes a systematic and orderly arrangement of knowledge. Science inquires for the sake of knowledge, art for the sake of production." (Webster.) "In science, *scimus ut sciamus* (we know that we may know), while in art, *scimus ut producamus*, (we know that we may produce)." (Karslake.) Does agriculture embrace in any sense the two? Beyond controversy. Science is either pure or applied. The former is purely speculative, apart from application; the latter is, speculative principles carried out in practice. The one is simply rules, principles, deductions; the latter, these in operation. We see, then, how science belongs to the domain of art; that is to say, science in its practical working is art. Agriculture is science in the sense of being "knowledge duly arranged, and referred to general truths and principles, on which it is founded: systematic and orderly arrangement of knowledge."

Agriculture is art in the sense of these principles, this knowledge being utilized. But is agriculture entirely a science? In other words, has it reached that point that it can be classed as one of the sciences; is it pure science? Assuredly not. But it certainly has progressed sufficiently to be rated as scientific. Its attainments in this are far greater than its deficiencies. Its problems are not

all solved, it must be admitted. There are certain questions in agriculture that so far have baffled all investigations. Time may explain them. Perhaps we should rather call agriculture, inchoate science. This much we may safely claim, I think clearly, there are many things it has firmly established, and upon which it can and does safely proceed. Analysis by its wondrous searching reveals facts which become truths, axioms; and upon the strength of which action can be logically based. Herein is agriculture science in the most rigid acceptation of the term. Its conquests are many and great. But little that is tentative belongs unto it. True, certain processes of growth and assimilation are yet a sealed book as to their comprehension.

Dr. I. R. Nicholls very pertinently says: "I have said that the new agriculture rests upon science and positive knowledge; but this remark must not be understood to mean that all the various departments of modern husbandry rest upon pure knowledge or demonstrated facts, for this position would plainly be indefensible; but I do say that the great fundamental principles are understood and established as clearly as those of most other branches of human knowledge. So far as the chemistry of plant structures and the forms of food they require are involved, our knowledge is positive; and also it is true that most of the details of practical farm industry are now so well understood that they may be said to be almost or quite removed from the regions of doubt. Clouds of uncertainty, the feeling that every step was governed by chance or blind caprice, belonged to the old agriculture; it certainly does not to the new."

Dr. J. B. Lawes uses the term, scientific agriculture, in his able writings. He speaks of "our advance in the path of scientific agriculture." Says Prof. McBryde: "Agriculture requires for the elucidation of the principles involved in its various practices, a very wide range of scientific inquiry." It is this scientific inquiry which has brought to light many truths bearing upon agriculture which now rest on the bed-rock of accuracy. The intelligent farmer, with all the accumulated data of plant life, food assimilation, weather influences, soil structure and soil treatment, can proceed confidently, and not be tossed about on the waves of uncertainty and mere caprice.

[We are not prepared to accept the proposition that applied science is synonymous with art. Nor can we admit that because we properly use the term "scientific agriculture," science and art are therefore one and the same thing; and notwithstanding the original "*ars*" of the Latin may have meant skill in execution, the modern "art" must have a broader significance. There are numerous artisans who are anything but "skilled" in their arts—mere bunglers in fact. In short, art, as we must understand it to-day, is simply the power of imitation—the ability to do something without any particular reason—while science is the power of reasoning on what we do, so that by the facts we gather from this experience we may do something or know something which we have never done or known before. By art we can make a right-angled triangle; by science derived from the triangle we can measure the height of a tree or a star. Thus, it is not difficult to see that in agriculture mere art, and science, are two distinct things. Scientific agriculture becomes agriculture aided by science.—Ed. G. M.]

BOTANICAL COLLECTING IN LARGE CITIES.

BY M. D.

The following plants, mostly herbaceous, are to be found growing on our streets, in fence corners and ditches, and on the open lots in and just on the edge of the town:

Stellaria media,
Calendrinia Menziesii,
Ranunculus Californicus,
Rumex pulcher,
" acetosella,
" crispus,
" conglomeratus,
Anthemis cotula,
Cotula coronopifolia,
Malva borealis,
" rotundifolia,
Medicago denticulata,
Erodium moschatum,
" cicutarium,
Sonchus oleraceus,
Raphanus raphanistrum,
Capsella bursa-pastoris,
Chenopodium ambrosoides,
" album,
Plantago major,
" hirtella,
Xanthium spinosum,
" strumarium,
Erigeron Canadense,
Marubium vulgare,
Amarantus retroflexus,
Oxalis corniculata,
Anagallis arvensis,
Gilia squarrosa,
Troximon grandiflorum,
Silybium marianum,
Aster Chamissonis,
Claytonia perfoliata,
Heliotropium curassavicum,
Eschscholtzia Californica,
Polygonum aviculare,
" acre,
" nodosum,
Brassica nigra,
" campestris,
Mentha aquatica,
Gnaphalium decurrens,
" purpureum,
Artemisia vulgaris,
Epilobium paniculatum,
Œnothera ovata,
Melilotus parviflora,
Zauchneria Californica,
Stachys ajugoides,
" pycnantha,
" bullata,
Ambrosia psilostachya,
Silene Gallica,
Hemizonia macradenia,
" angustifolia,
Corothrogine filaginifolia,
Hosackia glabra,
" Purshiana,
" probably two or three other species,
Centaurea Melitensis,
Grindelia robusta,
Madia sativa,
Matricaria discoidea,
Boisduvalia densiflora,
Baccharis pilularis,
" Douglasii,
Trifolium barbigerum,
" microcephalum,
" perhaps other sp's,
Bidens pilosa,
Hypochæris glabra,
Achillea millefolium,
Hypericum anagalloides,
Solanum nigrum,
Taraxacum dens-leonis,
Nasturtium officinale,
Verbena prostrata,
Urtica holosericea,
Franseria bipinnata,
Atriplex leucophilla,
Sisymbrium officinale.

Some of the above list grow principally, or more actively, during the cooler months, others are summer growers, thriving in almost any amount of dry-

ness. The Erodiums and Malvas are conspicuous instances of the former class, the Madia and Hemizonias of the latter. Not a few of the annuals come up all through the winter months, making but little progress, however, until the arrival of spring.

Hypericum anagalloides is to be found on lawns, where, diminutive as it is, it succeeds in pushing back the grass and enlarging its borders. Here also, if anywhere, will be seen Dandelion. This weed of the Eastern states is not likely to spread in California, or even to exist here, excepting on thoroughly irrigated land.

Capsella b. p. and Senecio vulg. are met with as yet, only in two or three spots in town. The latter, I presume, is a recent introduction, and as it seeds freely and abundantly will rapidly spread. Cotula coronopifolia grows in wet gutters, ditches, and in quiet water along the margins of streams. Its flowers looking like golden buttons are almost always with us. Watson, in his Botany of California, names but one mint, M. canadensis, a foot high plant. The species growing in Santa Cruz is frequently seen from three to five feet in height. This, without analyzing it, I have supposed to be M. aquatica. It may be an enlarged form of M. c., because of continuous growth from year to year. The Atriplex and Franseria grow on the beach—never away from it, except when removed by human hands. Plants of both were brought by myself from the beach last spring and set out in rich loamy soil a half-mile back from the bay. Here they grew just as luxuriantly as on their native sand. Why should not at least the Franseria, with its spiny fruit, like its relatives the Xanthiums, become widely distributed over this coast country, the soil of which seemingly so well suits it?

As will be seen, I have omitted from my list the native and introduced grasses, and the plants which are only found along the river's edge.

Santa Cruz, California.

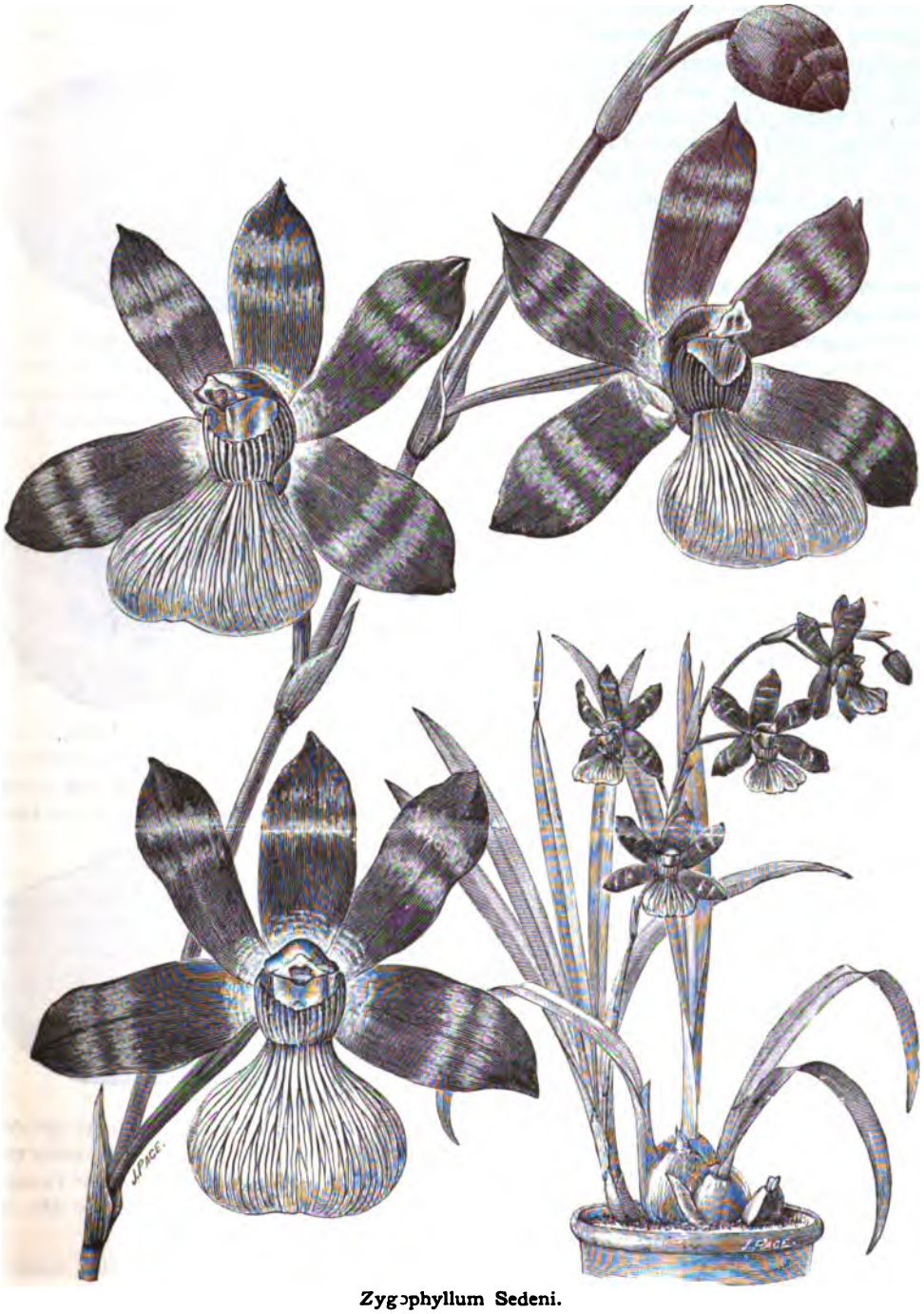
[We are glad to give this as a suggestion to young botanists in large cities, who long for the collecting opportunities of the country, to note how much of interest may often be found within the walls. Geographical botany is in itself a very enchanting study, and towns offer an excellent chance to watch the introduction and spread of new comers. In regard to what our correspondent says about the dandelion, we do not believe aridity will stop its onward march. The writer saw it in great abundance everywhere about Ogden, Utah, in June last—and it is probably drier there than at Santa Cruz, which is in the direct track of the moisture from the Pacific Ocean and which is probably the secret of the great vigor of the Redwood forests near that town.—Ed. G. M.]

EDITORIAL NOTES.

Remarkable Vitality of Willow Twigs.—There is no story more "abundantly substantiated," than that the first weeping willow tree in England, was raised from a sprout which had come from an old basket in which some figs had been packed from Smyrna, and which had been thrown into the Thames near the poet Pope's garden at Twickenham. Some iconoclast has, however, thrown down the historic idol, by showing that baskets are never made of the weeping willow, nor could they be, if one tried, for the branches are brittle as pipe stems. Yet the *Botanical Gazette* furnishes another basket story "abundantly substantiated," it is said, of an old worn-out basket, thrown into a ditch at the base of the bank of the Illinois & Michigan R. R., near Chicago, which, in 1853, some one found full of sprouts. The basket was dug up with its sprouts for the curiosity of the thing, and transplanted to a garden, but none made a willow tree. Now there is no reason, as any gardener will know, why sprouts coming from, and attached to a willow basket, should die by instant removal. There is no "shock to vitality," when basket and all was removed as there would have been if the shoots had been separated from the basket—and unless we know what our good friends of the *Gazette* mean by "abundantly substantiated," it will be best to believe that the "sprouts" were of Dianthera, Polygonum, or of some willow-like plant which had twined in, as chess will sometimes twine through a wheat stock. It will certainly not be safe till then for any generalizer to build much on this statement.

Zygophyllum Sedeni.—A Hybrid orchid.—Looking over some letters of the late Dr. Engelmann, referring to a peculiar variation, and his belief that it was a hybrid, he remarks—"moreover it is sterile as a well behaved hybrid ought to be." But we do not now-a-days regard this as any proof, and hybrids are indeed known to be as fertile as ordinary plants. In orchideæ especially has this been found true. We do not know of any hybrid orchid—and there are now numbers of them—but which is as fertile as its parent. We give here an illustration of one of these hybrid orchids raised at Messrs. Veitch's nursery, at Chel-

sea, near London, of which we have the following account:



Zygophyllum Sedeni.

"A remarkable, and in many respects a most interesting hybrid, raised by our foreman, Mr. Seden, from Z. maxillare and Z. Mackayi, the latter being the pollen plant. The habit of the plant is neat and compact, and its growth free. The pseudo-bulbs and leaves are nearly as in Z. max-

illare, but the latter more erect. The flower-scapes are robust, and bear from six to eight flowers, intermediate in size between those of the two parents. They are thus described by Professor Reichenbach: 'The sepals and petals are green outside, almost blackish, with a fine metallic lustre inside; lip whitish, almost covered with bluish violet markings; callus and column of a very beautiful violet.' The rich blue color of the labellum is unique among orchids, and renders this plant one of the most striking of the results of Orchid hybridisation yet offered."

THE BERNE PEOPLE AND THE PHYLLOXERA.—Mr. Krelage sends us the report of a scientific examination, signed by Dr. J. H. Wakker as secretary, showing by an actual examination of the facts, what everybody of sense already knows, that the wholesale prohibition of the Berne convention is a severe type of international insanity. However, they have to put the language more delicately, and the paper is drawn up chiefly in connection with the flower-root question. We give a translation of Dr. Wakker's concluding paragraph:

"The general conclusion is, that in the surroundings of Haarlem flowering bulbs cannot in any way contribute to the dissemination of Phylloxera. On one hand there is nothing to fear, as in the case of plants which sustain this dreaded insect, and on the other hand, there is not a particle of chance that the earth in which they are cultivated may be infested. Nothing, then, should justify any measures through the government, private individuals or societies, to impede the importation of bulbs. Such measures would only cause great losses to merchants without any compensation, as a means of defense against the invasion of Phylloxera."

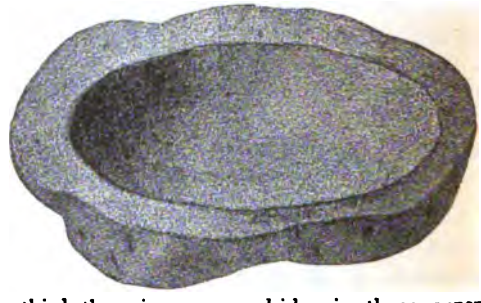
SOLANUM OHRONDII.—This "novelty," is said by Mr. J. G. Baker to be an old species described as S. Commersoni. Mr. Baker, as we understand, does not regard S. Fendleri as distinct from S. Jamesii, which latter name he adopts.

FORETELLING THE WEATHER.—Dr. Geo. Engelmann, of St. Louis, has recently submitted the result of 48 years of weather observations at St. Louis. There is no rule he says. The mean summer temperature of St. Louis is found to be 76°-8; the mean winter temperature 33°-4; the mean annual temperature 55°-4.

TRANSPORTATION OF CUT FLOWERS.—Some years ago we noted in these columns the receipt of some flowers from Mr. Skinner, of Troy, Ohio, which came in the shell of a scooped out potato. We have now, some weeks since, some from Mr. Henderson, of which we make the illustration here given. Some have been sent to England, and

reached there with the flowers as fresh as if just cut from the plant. There seems to be a coolness and equability of temperature, with moisture which is just the thing for the preservation of flowers,

and which nothing else can give so well. It is a question how far a tight box lined with exact squares of potatoes would do for the safe transportation of flowers long distances—and it is because



we think there is some good idea in these experiments which may have a wider application than a few buds in one root, that we have thought it worth while to give a sketch of the one Mr. Henderson sends us.

CATALPA SPECIOSA.—We note that some writers are contending that there is no material difference between the two species of catalpa. This is the natural reaction against the extravagant detraction of the older known kind. When Eastern

people are told that catalpa bignonides is "tender," and unfit for timber, and they know it is not tender and makes admirable timber, they are to be pardoned for believing that Western people have got things a little mixed. But we must discriminate justly. Catalpa speciosa is a distinct species—and there is good reason for believing that for Western forestry it is much better than C. bignonoides.

SCRAPS AND QUERIES.

RAINFALL IN THE WEST.—"Is it a fact that the rainless region west of the Mississippi is gradually growing less in extent?" says a Pennsylvania correspondent.

[We do not know that it is a fact. We have not seen any figures of the rainfall which show that there is any change, and the mere belief of people is not "a fact." But there is reason to believe that before the Rocky Mountains were thrown up in comparatively modern geologic time, the "region west of the Mississippi" was moister than now. The moisture taken out from the atmosphere by the rocky peaks, and held as snow, would perhaps be spread over the whole dry region, if the mountains were not there. As the mountains crumble and are carried to the ocean, the height must lower, and we may imagine that a few feet of lower elevation might make a mile or two of difference in the rain area of the level country beyond. It is safe to say that the rainless region must be gradually decreasing to some extent when we consider these facts.—Ed. G. M.]

SEEDS OF THE NEW SPECIES OF POTATO.—Mr. J. G. Lemmon, of Oakland, California, has a limited stock of the tubers of the Solanum tuberosum, variety boreale—S. Jamesii—and a few packages of seed of the new species noted in our last, which he will sell so far as the stock holds.

THE GLASTONBURY THORN. — This singular variety of Hawthorn flowered on Christmas day in the old churchyard of Glastonbury, as we learn from an English letter.

ROSE WITHIN A ROSE.—Mr. Peter Henderson says: "I send you to-day a monstrosity from the rose, Gen'l Jaqueminot, which freak is entirely new to me, but probably with your greater experience in such matters you may have seen the same wonder. These are always interesting I know to men who view nature in her various phases as you do."

[This is a rose within a rose. A rose is first formed, then a stem rises from the center and another rose is formed on this. We have seen cases before, but none so very perfect as this.—Ed. G. M.]

DISTRIBUTION OF WEEDS.—A correspondent referring to the item under this head in our last, that a great proportion of weeds have been able to gain a footing and spread rapidly because they are distasteful to cattle, calls attention to the fact that the Japan clover, Lespedeza striata, has spread in the most remarkable manner through the Southern States, and is eaten with keen relish by cattle. Still it is, as said before, the "great proportion" take advantage of their distastefulness; the clover produces seeds quite close to the ground, and in its case the eating quite close still gives some chance for reproduction.

DISH-CLOTH GOURD.—"Inquirer" asks: "At the recent meeting of the Mississippi Valley Horticultural Society, in New Orleans, I was shown a sponge-like mass which I was told was the interior of a species of gourd. Can you give me the botanical name of the plant? It seemed a very useful thing, either as a sponge or as a substitute for a towel on a pinch."

[Luffa Ægyptica.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

PHYLLOXERA LAW IN HOLLAND.

BY J. H. KRELAAGE.

To avoid misunderstandings it seems to me not superfluous to say a few words about the position of the kingdom of the Netherlands on the Phylloxera question. The Netherlands have waited as long as possible to adhere to the Berne convention. Arrangements had been made with almost all the States which were parties to the Berne convention, to allow introduction of Dutch plants and

trees with the certificates issued by the Dutch community authorities. In March, 1883, the German Phylloxera laws, however, came into execution, and by that law the entrance was forbidden of every rooted plant, tree or shrub from those countries which were not a party to the Berne convention. To make possible the continuation of the very important importation of these articles from Holland into Germany, it became necessary that this country should adhere to the Berne convention, the annoyance occasioned thereby being inferior to the loss of gain, which would have been the consequence of non-adhesion.

The new Dutch Phylloxera laws are ruled on the same way as in Belgium. For example, from the United States of North America, as a government which does not take part in the Berne convention, free introduction is allowed, (and for these articles, certificates of origin are not wanted,) wine grapes, dried grapes, lees of wine, grape seeds, cut flowers, vegetables fresh and dried, flower roots, seeds and fruit. As for wine grapes and lees of wine, there are some prescriptions given as to their packing. Entrance and transit of living vine plants or dried vine branches, is not allowed without special permission of the Minister of Commerce, and this permission can only be given if the products come from a district not infested by phylloxera. The introduction of all plants, trees, shrubs, etc., except vines or parts of vines, of which free admission, as above stated, is not allowed, can take place in the Netherlands, if they are carefully packed, but such as to allow examination of the custom house officers, and if they are accompanied by a certificate of origin conforming to those prescribed by the Berne convention. If such a certificate is not sent with the consignment of plants, etc., they are inspected by the official experts at the cost of the receiver before their delivery is allowed. If there is found nothing suspicious, they are delivered; if the contrary they are returned or destroyed, according to circumstances.

The horticultural trade from America to Holland ought in consequence not to suffer the least by the new Phylloxera laws of this country; only the exporters of plants, etc., ought to take care not to send vines or parts of vines with other plants, and to conform themselves to the rules, which do not give much trouble.

As for transit to Germany, it will not be possible in my opinion to send American plants through Holland to Germany. It is most probable, if not certain, such plants, even if allowed to pass, after examination of the experts, the country of the Netherlands, would be refused at the German frontier, as coming from a country which has not adhered to the Berne convention, and whose rooted plants are forbidden to enter the German empire.

Haarlem, Feb. 14th, 1884.

EDITORIAL NOTES.

DR. GEO. ENGELMANN.—The notice we received as we were going to press last month did not give the date of the death of this distinguished botanist, which was on the 4th of February. The title of his early work should have been "Antholysis," and not "Anthologia," and his son may be said to be rather a physician than a chemist.

PROFESSOR S. B. BUCKLEY.—It is only at this late date, March 13th, our magazine being on the press, that we learn of the death of this well known botanist, which occurred at his home in Austin, Texas, suddenly, on the 18th of February. He had spent a month in botanical researches at Columbia College, New York, returning with what appeared to be but a troublesome cold, and died unexpectedly within a week after the return. Mr. Buckley was some thirty years ago at Yellow Springs, Ohio. He made extensive collections in North Carolina, and added largely to our knowledge of the plants of that section. One of his discoveries, a shrub looking like a Privet, but belonging to the natural order of Santalaceæ, was named in his honor, Buckleya distichophylla, by Dr. Torrey. At the breaking out of the war he was collecting in Texas. He got some of his collections through the lines in a damaged condition, and published an account of them—but the scant and damaged material was unfavorable to a perfect diagnosis, and some of the supposed new species did not stand; but the work on the whole added greatly to our knowledge of the Texan Flora. Soon after the conclusion of the war, he married, and removed with his wife to Texas, where he became head of the State Geological Survey, and continued in active service to science in different branches up to the day of his death. In personal intercourse, Dr. Buckley was genial and attractive, making friends wherever he located; and his death coming so close to that of other eminent botanists adds additional weight to the loss botanists everywhere will feel at his demise. His wife still survives, but we believe no family.

PINE GROVE CEMETERY NEAR BOSTON.—This is under the management of Mr. Daniel Barker, a well-known and active member of the Massachu-

setts Horticultural Society, and is regarded as one of the best conducted in Massachusetts. The roads or avenues are all named after trees, and the smaller paths after shrubs and herbaceous plants.

THE NATIVE FLOWERS AND FERNS OF THE UNITED STATES.—By Thomas Meehan. L. Prang & Co., Boston, Mass. A Missouri correspondent sends us the following translation from the German of a notice of this work:

"It is a real joy and delight for the lover of good books as well as of beautiful illustrations, to study with attention the grand literary enterprises of our day. One work excels the other in artistic finish, especially with reference to truth to nature, and this is particularly observable in the latest works on natural history; they are not only collections of beautiful pictures, but furnish above everything else important material for object teaching. The most prominent works in respect to elegant colored illustrations are several on ornithology, (like the rich work by Dr. Russ, 'The Foreign Cage Birds,') and several botanical works.

"There are certain misgivings about chromo-lithography, and a mild shudder creeps over the connoisseur and admirer of the great masters, when he contemplates that any picture may be reproduced by chromo-lithography anywhere and in any way; but it is different with birds and flowers, which have lately been reproduced in excellent color prints of really wonderful perfection, and at the same time at astonishingly low prices. Among the finest productions in this line has to be named the above mentioned work. We may even go further and say, that hitherto nothing like it has been published in America. Every lover of our native plants, every friend of science, every connoisseur of good pictures will thank the publisher, the author and the artist, that they have brought out this magnificent and most useful work, at the astonishingly low price of fifty cents for four wonderfully fine chromo-lithographic plates. This work will doubtless tend to create a taste for the ideal and beautiful among American people, now too much occupied with materialistic considerations. The success of the work will depend on the support it will receive from lovers of nature, and especially of flowers, admirers of good pictures and books, men of science, and all who have sympathy for the poetry of life. The 'Native Flowers and Ferns,' should find a place in every larger and better private library, but especially in the library of every higher institute of learning—high schools, latin schools, academies and seminaries, &c. It will enable teachers of natural history to bring before their scholars not only single plants, but entire families and orders. Our children need not roam in field and wood, in the prairies of the West, in the swamps of the South, or among the rocks and cliffs of the mountains, to become acquainted with plants; they can with ease contemplate them true to life, by turning over the leaves of this magnificent work.

"The author of the work is Thomas Meehan, a name well-known to all botanists and horticulturists. This name alone is a guarantee of the excellence of the work. Under his direction, a German artist, Mr. Alois Lunzer, has painted the plants from nature. The firm of L. Prang & Co., have given a new proof of their high reputation by the beautiful plates."

It may not be out of place to add that since the sudden death of Mr. Robson, the last publisher, and the bankruptcy of his estate, Mr. Meehan has endeavored without success to find a Philadelphia firm to resume its publication. He has had to look to New York, and has now reason for believing that the work will reappear with the new year. He has at least sufficient encouragement to feel warranted in engaging Mr. Lunzer to go on again this summer with his beautiful drawings for him.

SILK CULTURE CHART.—Mr. Felix Gillett, of Nevada city, California, has prepared a chart for hanging up in rooms, so that instructions in every thing relating to mulberry leaves, varieties, culture, rearing insects, and preparing silk, can be seen at a glance. It is an excellent idea.

FLORIDA, AND GAME WATER BIRDS.—By Robert Barnwell Roosevelt: New York, Orange Judd Company.

Florida, the land of the orange and flowers—the land of health and rest for the sick and the weary—but Florida as a sporting country, has never been fully described. It is the object of this work to do it. Game is disappearing in many parts of the Union. In Florida it still abounds. Mr. Roosevelt says it is a sportsman's paradise. The birds, fish and animals are fully described, and every information given as to where and how to find them, and to fully enjoy the sport.

THE BOOK OF PLANT DESCRIPTIONS, OR RECORD OF PLANT ANALYSIS. Prepared for the use of teachers and students, by Prof. G. Groff of Lewisburg, Pa.

We noticed this excellent book on its first appearance, and the popularity of the scheme is at-

tested by the fact that this is the fifth edition of the work. And yet it is very simple. It gives definitions of all terms used in describing plants, and the rest of the work consists of blank pages in which the student fills in his own descriptions of the plants he analyzes. The book is but thirty cents—little more than the stationery usually employed by students.

PALLISER'S USEFUL DETAILS.—To enable builders and artisans, as well as others interested in the construction of any building whatever, the authors have hit on the idea of not only giving general elevations and plans, but also of issuing working plans of every part of the structure, so that any artisan can see at a glance just how to put up any desired building. We have looked particularly at the plans of "an office" and wished we had just such intelligent directions at the commencement of business; and we note many good things besides which it would be to the great interest of every gardener and nurseryman to know. We believe it will be a very useful undertaking, and hope it will prove the profitable venture it deserves to be. The publishers are Palliser, Palliser & Co., Hartford, Conn.

THE FLORIDA DISPATCH.—Of the large number of exchanges which come to an Editor's desk, and which he has to "go through" at any rate out of respect to those who send them, there are always a few so full of real information that they are usually set aside for a second and careful reading. One of these from our daily mail, is always the *Florida Dispatch*. It is a monthly, now in its third year, and published by Ashmead Bros., Jacksonville, Florida.

SCRAPS AND QUERIES.

TO INTELLIGENT CORRESPONDENTS.—*All communications relating to advertisements, subscriptions, or other business, must be addressed to the publisher, 814 Chestnut Street, Philadelphia.*

All referring to the reading matter of the magazine must be mailed to the editor, Germantown, Pa.

No express packages for the editor received unless prepaid; and marked "Paid through to Germantown, Pa."

LEGIBLE SIGNATURES.—Mr. Robertson says: "As I am daily in receipt of communications from parties asking information on different subjects, mostly prefacing their inquiries by observing that they have seen my articles in your GARDENERS' MONTHLY, and many of those queries are interesting and instructive to me, I wish to state that it gives me great pleasure to reply, if I can in any way benefit any one, floriculture being the branch to which I devote my special study.

"The circulation of your paper must be very wide spread, judging from the diverse sections from whence I receive those queries, and all unite in high praise on the benefits they receive from your magazine. With them I agree that there are few papers that contribute so much fresh matter as yours does. I have to thank you for the kind manner in which you make allusion to my work; also to the public press for their many kind utterances and references to these feeble efforts of mine in a direction in which there is so much chance for improvement. One great difficulty I often experience is, and you as an Editor must find this so—letters are written plainly enough, but the signature usually indistinct, and I expect some of my answers never reach their destination."

[Just so—many a time in sheer despair at making out a signature, we have to cut out the writer's own work, and paste it on the envelope for the post office officials to experiment with—and we have a pigeon hole full of letters which cannot be answered at all, because of the failure in endeavoring to spell out the writer's name.

The difficulty in the way of reform is, however, that every body who reads this believes that the remarks exactly fit some neighbor, and not himself. No one believes that his own signature is anything else but as plain as print. Many years ago the GARDENERS' MONTHLY had a correspondent from West Chester, in Josiah Hoopes. The communications were perhaps the most legible that ever came to our office. Yet we noted that, in nine cases out of ten, the printer would set up his signature as Hooper, instead of Hoopes; and the best of the joke is—and we are sure it is one our correspondent himself will enjoy—we have handed Mr. R.'s present note to a number of persons to whom his writing is strange, and every one declares the signature is "N. Roberkon."

The only chance for reform is, that every person look closely to making every letter plain and distinct.—Ed. G. M.]

A GOOD BOOK ON THE ROSE.—Mr. E. Lonsdale, Germantown, notes: "In reply to Mrs. J. G. M., Buffalo, N. Y., on page forty-three, February MONTHLY, I can with confidence recommend for her guidance in the matter of roses, 'The Rose,' written by the late lamented H. B. Ellwanger. It is considered, by those competent to judge, to be

the best book published in this country on this interesting subject. It can be procured through any first-class seed or book store. Mr. Marot advertises it.

"In reference to the violet, 'Swanley White,' wherever Marie Louise can be successfully grown, there ought not to be any difficulty about growing this new one, for it is said to be a sport from the old favorite, Marie Louise. I saw a large bunch of the flowers of Swanley White on exhibition, at the November meeting of the New York Horticultural Society, placed there by Messrs. Hallock, Son & Thorpe. It is really an acquisition, where a white violet is appreciated. It is somewhat scarce yet; the flowers, it is reported, have been sold at very high prices during this season in New York. Fifty dollars have been paid for a wedding bouquet made of this violet."

RULES FOR PLANT NAMES.—"G. L.," Allegheny City, Pa., writes: "I noticed in a catalogue, trees named thus; Cupressus Lawsoniana, Cerasus Virginiana. The four last letters, 'iana,' which are added or connected, are they named in honor of a person or named after some place, and is it of our language? I know the Dutch add 'um,' and some English add 'ii.'"

Plants names follow the rules of the Latin language, and have no relation to anything Dutch or English. Where we say, he, she, or it, the Latin language changes the termination of the word. Usually when a plant's name terminates in *a*, it indicates the feminine gender, the *us* masculine, and *um* the neuter. Case is also indicated by termination. Smith in Latin would be rendered Smithius. If we want to make what in English we should call the possessive case, we simply alter Smithius to Smithii—the rule being to drop the two last letters and substitute an i, and this is why there are sometimes only one, and sometimes two ii's. It is simply owing to whether the third letter from the end was an i or not. While Smithius makes Smithii, Johanus would be Johani. The termination, iana, is used when the name is given more as a matter of honorable association. Cupressus Lawsoni would be the form if Mr. Lawson had found the cypress—Lawsoniana means that he was simply honored by the name, though he had nothing to do with the discovery. In like manner Virginiana means that the plant is associated with Virginia. In the earlier times most of the knowledge of American plants was derived from botanists or collectors who lived in Virginia. The plants were sent to the old world from there, and hence they became associated with that state.

THE JEWISH CITRON.—Mr. C. L. Allen writes: "By referring to Lindley you will find the botanical name of 'a Jewish citron,' that 'A. Z.' wishes to know, to be Citrus medica, a fruit the Jews always use in the feast of the Tabernacles. It is also figured in 'Loudon's Encyclopædia of Plants.'"

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

NEW YORK HORTICULTURAL SOCIETY.

BY E. L. T.

The last monthly meeting of this society was held in Horticultural Hall, on Tuesday, March 4th, and although many of the choicest exhibits were withheld on account of the severe weather, the exhibition was one of great merit and interest to amateurs and professionals. Many of the orchids shown were exceptionally fine, though some were unfortunately cut by the frost in transit. The largest collection of orchids, both plants and cut flowers, contained a very fine plant of Dendrochilum glumaceum, covered with flower spikes; very good plants of Dendrobiums—macrophyllum and thyrsiflorum; Lycaste Skinnerii, large, very pale variety of Cattleya Skinnerii, Chysis bractescens, and Dendrobrium Wardianum. The same exhibitor showed some fine Amaryllis—Williamsii and Nightingale being specially noticeable.

A well-known grower of herbaceous plants exhibited one hundred and sixteen varieties of Narcissus, but while many of them display beauty of form or color, the majority are more interesting to botanists than the general public. Other herbaceous plants shown were, Anemone fulgens, Iris reticulata, Viola pedata bicolor, and Chionodoxa Sardensis.

Among cut flowers, spikes were shown of Phalænopsis Schilleriana containing thirty-eight, forty-four and forty-six flowers, very fine Phalænopsis Stewartii, and Cypripediums villosum, Lowii, and Harrisonianum. Other cut flowers shown were, Acacia pubescens, Olea fragrans, Spirea, Allamanda, Azaleas, Cyclamens, Brugmansia, Lapageria, Nymphea cœrulea, very fine Gardenia; Inga pulcherrima, etc. One little flowering plant of Chrysanthemum, Fleur de Marie, looked rather out of season. A new Mignonette was shown, Bird's improved, very large and strong, a decided advance on the old Spiral.

There were good Carnations, and as usual, the Roses were very fine, though some of the Hybrids showed evidence of the dull weather. The most noticeable sorts were Magna Charta, Alfred Colomb, Souvenir de Malmaison. Mdme. Cousin, Mdme. Alex. Bernaix, and some wonderfully large Niphetos, Cook's and La France. Some very appetizing Mushrooms were shown, also Oranges and fruit of Cycas revoluta grown under glass.

"POT GROWN" CHRYSANTHEMUMS.

BY PETER HENDERSON.

I notice that several of the Horticultural Societies make it a condition that Chrysanthemums for exhibition must be pot grown, and that a question arises where plants are exhibited in pots, whether they have been pot grown the entire season or simply lifted from the open ground and established in pots. I can not understand why such conditions should be made. The practical issue is, to get the best plant established in a pot at the time of exhibition, and if a Chrysanthemum, or any other plant, can be better grown by being planted out for three months and lifted and potted, and thus save labor and make a plant as good or better, why may it not be done? Hardly any plant cultivated is of easier growth or requires less time and skill to make a specimen than the Chrysanthemum, and it seems to me a useless waste of labor to carry them through the season in pots if they can be as well or better done by planting them out and potting up.

Jersey City Heights, March 6th, 1884.

[It depends wholly on the object of the society —whether it desires to encourage a good plant grower, or a good plant. If the object be to get the best plant at the smallest possible cost and labor, Mr. Henderson is right. It is a good object, and should be encouraged by liberal premiums. But skill in growing plants in pots is also a worthy object of encouragement, and deserves the support of Horticultural Societies. No one suggested that lifted and newly potted plants should not be encouraged. This was certainly not Mr. Wooding's idea. The idea is that there should be two classes. There should be separate offers for plants wholly pot grown, and for plants grown wholly or partially in the ground. This is the idea we endorsed, and still endorse.—Ed. G. M.]

EDITORIAL NOTES.

MISSISSIPPI VALLEY HORTICULTURAL SOCIETY —Publishes a Business Directory which consists of a two-line advertisement, giving room for individual or firm name and address, with twelve to fifteen words of special interest, to be published under appropriate sub-classifications, in the forthcoming volume of transactions of this Society. This volume goes free of further cost to each member of the Society and to each patron of the Directory.

These lists embrace the names and post-office of the leading fruit-growers, nurserymen, florists, seedsmen, gardeners, fruit dealers and commission men, fruit canning and preserving establishments, manufacturers of horticultural implements and machinery, cold storage, manufacturers of fruit and vegetable packages, manufacturers of labels and nurserymen's supplies, etc., in the country. The volume will also give a roster of officers of all the principal horticultural and pomological societies in this country and the British Provinces. No better and more effectual mode of advertising can possibly be adopted, inasmuch as this volume not only goes into the hands of those directly interested, but at the same time furnishes a large and valuable list of names, of itself worth far more to any business man than the Directory fee. All applications must be accompanied by satisfactory reference as to business reliability. W. H. Ragan is Secretary, Lafayette, Ind.

AMERICAN FORESTRY CONGRESS.—A general meeting has been called by the executive committee, to be held in Washington, D. C., on the 7th of May, at 10 o'clock, in the rooms of the Department of Agriculture.

SALES AT HORTICULTURAL EXHIBITIONS.—At the meetings of the New York Horticultural Society, a public sale is held at the close to dispose of such articles as the exhibitors may not care to take home.

Pea, Bliss' Abundance.—90 pods counted on a single plant. Very productive, 15 to 18 inches high, requires no brushing. Second early. Excellent quality. 25 cts. per packet; 5 packets, $1.00. Postpaid.

Pea, Bliss' Everbearing.—A perpetual bearer, yielding a full crop until frost. An excellent late variety, 18 to 24 inches high. Requires no brushing. Peas of large size, many 1¼ inches in circumference. Immensely productive. 25 cts. per packet; 5 packets, $1.00. Postpaid.

Pea, Bliss' American Wonder.—The best and earliest dwarf grown. Very dwarf, excellent flavor. 20 cts. per packet; 40 cts. per pint; 75 cts. per quart. Postpaid.

N. B.—These three varieties will give you Peas throughout the entire season until frost.

Cauliflower, Sea Foam.—The best early variety, always true to head. 50 cts. per packet.

Watermelon, American Champion.—The best eating and best shipping Melon grown. More productive than any other sort. 25 cts. per packet; 5 packets for $1.00.

$50.00 in premiums offered for 3 largest Melons grown. For particulars, see *Novelty List.*

Rhubarb, Early Paragon.—A new English variety. The earliest and most productive variety. Never runs to seed. Roots only for sale. Price, 75 cts. each. Postpaid.

Pansy, Bliss' Perfection.—The choicest strain yet produced. Our *Gardeners' Hand Book* for 1884 contains a beautifully colored plate of this magnificent variety. 50 cts. per packet of 50 seeds.

Carnations, Shakspercan.—The finest ever introduced. Continue in flower the whole season. 50 cts. per packet. Plants, 50 cts. each. $4.00 for the set of 9 varieties.

Wild Garden Seeds.—A mixture of 100 or more varieties of Flower Seeds. A packet will plant a square rod of ground. 25 cts. per packet; 5 packets, $1.00.

Tigridia, New White.—One of the most beautiful of Summer Flowering Bulbs. 25 cts per bulb.

Remit by Postal Note, Money Order, Registered Letter or Draft.

For other Novelties see **Bliss' Illustrated Novelty List,** which describes the newest and choicest Flowers, Vegetables, Fruits, Cereals, Plants, etc. Mailed *free* on application.

Bliss' Gardeners' Hand-Book for 1884, containing 150 pages, 300 illustrations, and two beautiful colored plates. Tells **What, When** and **How** to plant, and is full of information, invaluable to all interested in Gardening. Mailed for 6 cents to cover postage.

B. K. BLISS & SONS, 34 Barclay Street, New York.

The GARDENERS' MONTHLY

AND HORTICULTURIST

FOR 1883-4.

SUBSCRIBERS

requested to send at least one **NEW** name with their own, if possible. For this attention, we will furnish **THE TWO** at $3.00 for the year.

TWO NEW SUBSCRIPTIONS at $3.00. FIVE at $7.00.

Remit by MONEY ORDER or REGISTERED LETTER; or if you send DRAFT or CHECK, make payable on MIDDLE STATES, NEW ENGLAND or MARYLAND. On BANKS west and south of those points add twenty-five cents to each check, to refund cost charged us for collection. Currency is at risk of sender.

RESPONSIBLE AGENTS

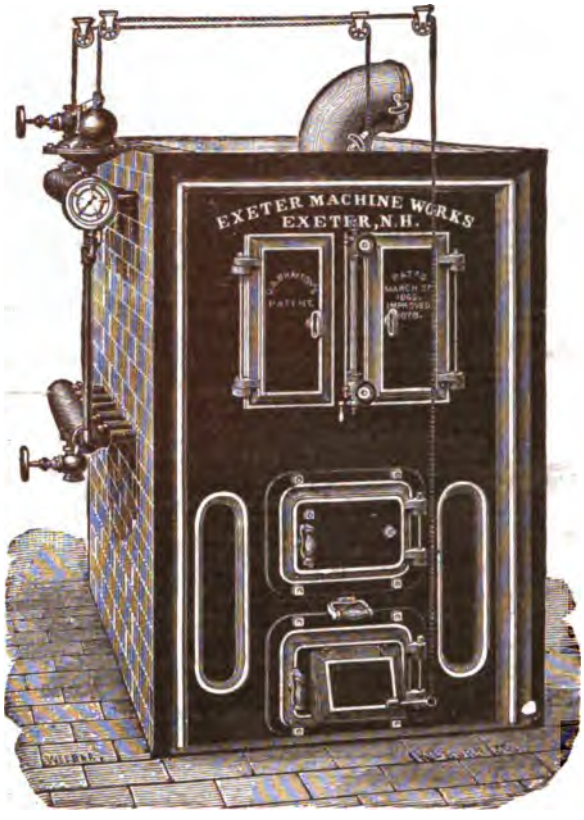
be allowed a liberal commission, retainable out of subscriptions secured and forwarded. Send for net rates. Sample copy 18 cts., postage stamps. We do not hold ourselves responsible for the acts of *Bogus Agents.*

SUBSCRIBERS MUST CHOOSE THEIR AGENTS AT THEIR OWN RISK.

Any Subscriber who has already renewed his subscription and paid $2.00 may order a new subscriber at the rate of $3 the two, by remitting the additional $1.00 to balance, and oblige, with thanks for past favors and efforts.

All subscribers, at whatever rate, are invited to take advantage of our list of **CLUB PAPERS.** See advertisement.

CHARLES H. MAROT, Publisher,
814 Chestnut Street, Philadelphia.



THE EXETER HEATING APPARATUS.

GREENHOUSE HEATING A SPECIALTY.

Our systems comprise Hot Water Heating, Steam Heating, and the combination of Steam and Water.

OVER 1000 BOILERS IN USE.

Exeter Machine Works,

19 Federal St., Boston, and Exeter, N. H.

We solicit correspondence from any party contemplating a change in their apparatus. tfn

---

A NEW BOOK NOW READY.

THE ROSE

A treatise on the Cultivation, History, Family Characteristics, etc., of the various groups of Roses, with accurate descriptions of the varieties now generally grown.

BY H. B. ELLWANGER.

Pp. 296, 16mo, cloth. Mailed, post-paid, on receipt of price, $1.25. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

KNABE

PIANOFORTES.

UNEQUALLED IN

Tone, Touch, Workmanship and Durability.

WILLIAM KNABE & CO.

Nos. 204 and 206 West Baltimore Street, Baltimore. No. 112 Fifth Avenue, N. Y.

GREENHOUSES HEATED

BY LOW PRESSURE STEAM.

mh12 SATISFACTORY PERFORMANCE OF APPARATUS GUARANTEED. ADDRESS,

E. H. BOCHMAN, - - - - Box 373, Pittsburgh, Pa.

Kissena Nurseries.

—

Trees and Plants.

—

Parsons & Sons Co.,

LIMITED.

Flushing, N. Y.

ftf

Parks & Gardens of Paris

considered in relation to the wants of OTHER CITIES, and of PUBLIC and PRIVATE GROUNDS.

By WM. ROBINSON.

Splendidly and profusely illustrated. pp. 548. Octavo. Price $7.50. Mailed post-paid on receipt of price.

Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

The Botanist's Pocket Book.

2nd Edition, cloth limp, pp. 208. By W. B. Hayward. Containing the Botanical Name, Common Name, Soil and Situation, Growth and Time of Flowering of every Plant, arranged under its own Order. Price $1.70. Mailed, postage free.

CHAS. H. MAROT, 814 Chestnut St., Phila.

MAY 1 1884

CAMBRIDGE HARVARD COLLEGE LIBRARY MASS.

Harvard College Library

THE GARDENERS' MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

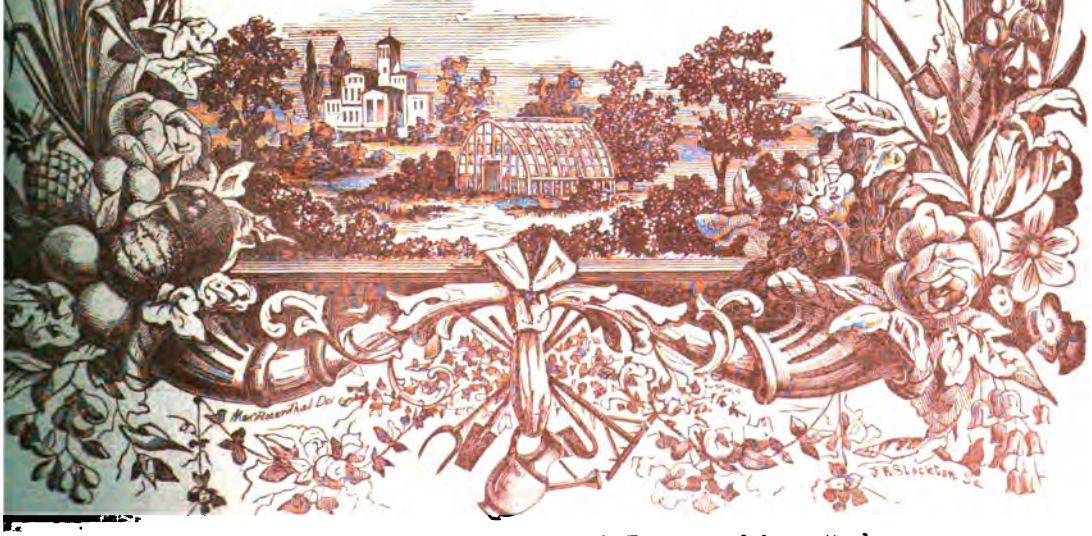
Vol. XXVI. No. 305.

(Combined Magazines, Thirty-ninth Year.)

MAY, 1884.

PUBLISHED BY CHARLES H. MAROT,

814 Chestnut Street, Philadelphia.



[Entered at the Post Office, at Philadelphia, Pa., as second-class matter.]

THE GARDENERS' MONTHLY

AND HORTICULTURIST.

It is published on the first of every month at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS relating to subscription or advertising should be addressed.

☞ Communications, Copy and Packages for the Editor should be addressed to THOMAS MEEHAN, GERMANTOWN, PHILADELPHIA.

SUBSCRIPTION PRICE, POSTAGE PAID, $2.00.

ADVERTISING RATES IN THE GARDENERS' MONTHLY:

	⅛ col. or 12 lines.	⅙ col. or 16 lines.	¼ col. or 24 lines.	⅓ col. or 32 lines.	½ col. or 48 lines.	1 col. or 96 lines.	1 page, or 192 lines.
One Insertion	$3.00	$4.00	$5.50	$7.00	$10.00	$18.00	$35.00
Two times, each	2.90	3.90	5.00	6.80	9.00	17.00	33.00
Three " "	2.80	3.75	4.75	6.55	8.50	15.50	30.00
Four " "	2.70	3.60	4.50	6.30	8.10	14.40	27.00
Five " "	2.55	3.40	4.25	5.95	7.65	13.60	25.50
Six " "	2.35	3.15	3.93	5.50	7.05	12.45	23.50
Seven " "	2.20	2.95	3.65	5.15	6.60	11.75	22.00
Eight " "	2.05	2.75	3.45	4.80	6.15	10.95	20.50
Nine " "	1.90	2.45	3.20	4.45	5.70	10.15	18.85
Ten " "	1.75	2.30	2.85	4.05	5.25	9.30	17.45
Eleven " "	1.60	2.15	2.65	3.75	4.80	8.55	16.15
Twelve " "	1.50	2.00	2.50	3.50	4.50	8.00	15.00

Twelve lines nonpareil is ⅛ col. A less space than ⅛ col. will be furnished at same rate per line as ⅛ col.
For space on FLY-LEAF and LAST COVER PAGE, also FIRST PAGE advertisements facing last reading page, 20 per cent. advance on above rates will be charged.

CHAS. H. MAROT, Publisher, 814 Chestnut St., Philadelphia.

CONTENTS OF THE MAY NUMBER.

SEASONABLE HINTS:

Flower Garden and Pleasure Ground..... 129-130
Fruit and Vegetable Gardening..... 140

COMMUNICATIONS:

Night Blooming Ipomœa..... 130
Ipomœa Grandiflora..... 131
About Roses..... 131
Three New Plants..... 132
Evening Glory..... 132
Dendroblum Pierardi..... 134
Seedling Begonias..... 134
Ferns..... 135
Hot-Water Heating..... 136
Notes on Geraniums..... 136
The Effect of Dull Weather on the Opening of Flowers 137
Orchids in April..... 137
Benches for Greenhouses..... 138
Hot Water for Destroying Insects..... 139
Adornment of a Lady's Hat..... 139
Henderson's White Plume Celery..... 140
Prunus Padus as a Stock for the Cherry..... 141
Varieties of Self-Blanching Celery..... 141
Chestnut Trees on Limestone Soil..... 143
Hardy Mulberries..... 143
Soils and Forests..... 144
Some Notably Large Trees..... 145
Sexes of Chestnut Trees..... 145
Insects as Conveyers of the Bacterian Contagion.... 147
Wonderful Tenacity of Life..... 149
The Jewish Citron..... 153
Massachusetts Horticultural Society..... 158

EDITORIAL NOTES:

Rare Water Lilies—Opening Public Gardens on Sunday—Garden Beauty—Rose Catharine Mermet—Lespedeza bicolor—Rare Trees in Harrisburg..... 133
Epiphyllums—Azalea, Miss Buist—Window Plants in the Old World—The Scarlet Geraniums 139
Reform in Names—Irrigation in the East—The Dogs of London—Fruit and its Markets—Stock for the Apricot—Bleaching Celery—Early and Late Peas..... 142
Trees on the Prairies—Arbor Day—Forestry Literature—The Black Walnut in Georgia—Another White Pine..... 146
Climate of Alaska—The Academy of Natural Sciences of Philadelphia—Lavatera arborea variegata—Zygophyllum—Ptelea aptera—Arctositaphylos oppositifolia..... 149-151
Public Parks in Philadelphia—A Gardener Wanted by the Police—Prof. S. B. Buckley—Mr. J. C. Lemmon—A Compliment to Isidore Bush & Sons—Transactions of the Worcester County (Mass.) Horticultural Society for 1884—Les Clematites a Grandes Fleurs—Horses: Their Feed and their Feet..... 154-156
Pennsylvania Horticultural Society—World's Fair at New Orleans next December—The Massachusetts Horticultural Society—New Orleans Exhibition—Germantown, Pa., Horticultural Society..... 156-160

NEW OR RARE PLANTS:

Hovenia dulcis—Artemisia Annua—Picea Omorika—Red-berried Ivy..... 133-134

SCRAPS AND QUERIES:

Forcing Strawberries—Another Hybrid Pear—Crossing Species of Strawberry—Hop Culture... 142-143
On the Wood of Quercus lobata—Spanish Chestnuts North..... 147
Peach Buds—What is a Poison?—Dead Limb Evaporation—Freezing of Sap in Apple Trees—Average Temperatures—Freezing of Sap in Trees—The Honeysuckle Apple..... 151-152
Michaux Garden at Charleston—Criticising the Editor—Reliable Seeds—Delayed Communications—Illegal Plants' Names..... 157
Pot-grown Chrysanthemums..... 160

FLOWER GARDEN & PLEASURE GROUND. 129-134
GREENHOUSE AND HOUSE GARDENING..... 134-139
FRUIT AND VEGETABLE GARDENING..... 140-143
FORESTRY..... 143-147
NATURAL HISTORY AND SCIENCE..... 147-153
LITERATURE, TRAVELS & PERSONAL NOTES 153-157
HORTICULTURAL SOCIETIES..... 158-160

MAY 1 1884

THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

VOLUME XXVI. MAY, 1884. NUMBER 305.

FLOWER. GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

The best time of the year to transplant evergreens depends on the kind of winters and summers that we are likely to have. Any where south of the Potomac autumn planting would be unquestionably the best, while in what may be called the Middle States, there is possibly no advantage in one over either. If we plant in autumn and a comparatively mild or moist winter ensue, the autumn planting will be very successful—and equally successful will be spring planting if a moderately moist and not over fervid summer follows the work. Further north, on the whole, spring is most successful, and of all the spring months May is the best for transplanting evergreens; it is the time when the young shoots are about starting into their season's growth, and the roots pushing at the same time; nothing or very little is lost by evaporation while waiting for the new fibres to grow.

Evergreen shrubs are not considered generally successful in our climate; but this is rather owing to our perversity in exposing them to the winter's sun, or planting them in too dry a soil, than to any insuperable difficulty of climate.

Evergreen shrubs, such as mahonias, yews, euonymus, tree box, etc., should be planted only on the north side of buildings, fences or screens; or under the shade of trees or bushes. The great danger in the latter case is that they will become too dry in summer, by the roots of the trees abstracting so much moisture from the soil. This is the common cause of failure with the rhododendron, kalmia and similar evergreens, which it is often attempted to grow under the shade of trees. In this case the proper course of procedure is to dig out the bed two feet deep previous to planting the evergreens; filling in or mixing with the natural soil some spongy or fibrous material. This will keep the soil moist and cool through several summers, until the roots of the covering timber, attracted to so much loose and moist soil, will be pretty troublesome. When this trouble arises, the way to proceed is to dig out all around the mass of evergreens two feet deep, severing all the roots that have interloped from the trees—and this should be repeated every few years, or as often as the soil seems to suffer from drought through the summer season. By this care, which in practice is found very trifling, evergreens thrive with a vigor and beauty in our climate that is truly surprising.

Last month we suggested that peculiar effects could be obtained by taking a few species and making an essential feature of them by successful growth for spring adornment. So also, much may done for summer effect outside of mere leaf and bedding plants. Why are not the class of succulents used more for bedding purposes? We do not

mean that they should supplant flowering things, of course. Succulents generally have no blooms adapted to cutting. Usually, in fact, they are very shy of blossoming; but they afford much varied form, and many of them have strikingly gay colors. They grow so well in our climate—asking no care—giving really so much in return for so little, that certainly we should make more use of them than we do. For vases, rock work, etc., they are almost indispensable. Amongst sedums, opuntias, and mammillaria, are some quite hardy species—so that winter or summer, they are self-supporting contributors to our floral pleasures.

Then again, the dwarf evergreens are not made as much use of as they might be; chiefly, because we employ them too sparingly. It is usual to plant them mainly for their botanical interest. We find persons pride themselves on having this or that rare thing in their "collection," just as the numismatist values his old coins; not for the use he can make of the rare penny, but because so few possess one. The real value of these plants is their capacity for adornment, and this is seldom brought out, unless they are used in groups or masses. It may be said that they are frequently too expensive to be used on a large scale; but it is the limited demand for them which keeps up the price. If one has not the means to buy them by the dozen at once, they may be increased on one's own ground. Almost all these dwarf evergreens root very readily by layers. A slit may be made in their stems near the ground, in June, and good rich earth mounded up about them, and generally they will be rooted by the next season. Some may be increased by inarching. Common kinds may be set against the rare ones. A little bark cut away from the stock, and from the kind to be inarched, and then the two cut places brought face to face together and tied with bark, woolen string, or any thing of that character, and they will be firmly united together before fall. Or they may be grafted on other things growing at a distance, by burying a small bottle till the mouth is level with the ground, at the base of a little plant to be grafted; fill it with water, then put a branch of the choice kind in the bottle, and tie together as in inarching, which it really is.

In preparing flower beds, we often notice a mistake made in copying from European gardening. There is too much earth in them.

In planting out flowers don't take them at once from the hot house to the open ground, set the pots out for a few days in a cold frame with plenty of air, or under a tree in a sheltered place. Before turning them out of pots, water; and when set in the earth, press the soil very hard about the flower roots. If the ground be dry, the earth cannot be pressed too hard.

Don't make the beds very high, or the rains in summer will run off too rapidly. After smoothing the surface peg down the plants as much as possible so as to cover the surface soon. The plants also push out side shoots easier. Where small twigs can be had, split and double them like hair pins, for pegging down; where these are not at hand, small pieces of bast mat or twine, doubled and dibbled in the earth by the ends, make very fine pegs.

In this climate, hothouse plants often make noble bedders. The Chinese Rose Hibiscus, is a first-class thing, making a gorgeous show all summer. The Geranium also is getting immensely popular. The tree Carnation is also in much request. The Madagascar Periwinkle, rose and white, is also now often seen in beds and masses.

Climbing plants grow faster on trellis than left to themselves; stick them in as soon as the climbers are set out.

Mow lawns very early the first mowing; or at every subsequent mowing the lawn will look brown; a thin sprinkling of salt is good for the lawn—just enough salt to see the grains on the surface about a quarter of an inch apart. An over-dose will destroy the grass. Frequent rolling is one of the best ways to get a good close sod. When coarse weeds get in the lawn, hand weeding is the best remedy.

COMMUNICATIONS.

NIGHT BLOOMING IPOMŒA.

BY A LADY OF CHARLESTON.

In the February number of the GARDENERS' MONTHLY there is a sketch of an Ipomœa, which recalls to my mind the history of the plant as we first knew it. A few large, black seeds were given me in the spring of 1848, by a lady who said they were brought to Charleston by Bishop Boon, from China, where, if I remember correctly, he had lived as a missionary for several years. I planted the seeds at the foot of a tall tree growing in the yard of our house. About June the vines had climbed among the topmost branches and festooned themselves in all directions. One bright moonlight night we were amazed to see our tree resplendent with large white convolvulus-shaped

flowers, most beautiful in the moonlight, in fact, our tree was the admiration of the neighborhood: Your correspondent says the flowers are about five inches in diameter; ours must have been fully seven. The vines flowered profusely; stood the summer heat perfectly, but the first frost was the death of them. Years passed; I lost sight of these lovely plants, and when two or three years ago I again met with them I was surprised to see how much they had deteriorated; both leaves and flowers were so much smaller than those I grew from the seeds brought from China.

IPOMŒA GRANDIFLORA.

BY H.

Noticing a communication from Mr. Wooding in regard to this, I would say we had it growing here last year on a dry, limy soil on the south side of a large frame house, and it thrived and bloomed as nothing else did; forming a rapid, thick, rich green screen, growing to the height of fifteen and eighteen feet. It is covered in the middle and latter part of summer and during autumn by its multitude of beautiful white flowers. The plant does not grow well in the shade, although it does better than many other vines. The upper part of the entrance to the Insane Asylum was covered with this plant, and was a perfect mass of flowers. We have no other climber here that will stand the heat and drought as this does. The plant may be kept in the cellar over winter, although it sometimes stands out. Taken altogether, we have no plant which can rival it for its purpose, in its rapidity of growth, density of foliage, and amount of flowers. *Jacksonville, Ill.*

ABOUT ROSES.

BY E. FRYER.

Hardy roses that are kept dormant over winter often fail to grow, though they may appear to have good roots and strong stems. The causes of failure are various. But the principal cause is generally from too much dryness in the keeping. A well aired root cellar where all other roots keep to perfection is often disastrous to roses. Large quantities of roses are dug up in the fall, packed in cellars, and though they may be handled with all possible care, yet, if exposed to excessive dryness through any cause, will be so exhausted of their sap by spring that they will fail to grow for any one, either amateur or professional. A rose plant that has been grown rapidly all summer has probably the least root in proportion to top, of any plant that is grown. Every commercial grower wants to get as much top as he can on a one-year plant, and the rapid growth in rich ground is too often followed by as rapid evaporation when either roots, or stems, or both, are unduly exposed to any drying influence. In a two-year-old plant the growth of the stem is more concentrated and the root is proportionately better, but not every buyer is willing to pay the difference in cost.

The material in which rose roots are packed in cellars should often be changed. Sand or earth in which roots are stored for several years generates fungus, which often literally eats them up; serious losses are often sustained from this cause.

A current of air blowing through a cellar from one door to another will dry up roots and stems more rapidly than many suppose. In the latter case watering must be resorted to, which, though a necessary evil, is better than excessive dryness. In all severe climates, where sufficient snow does not remain on the ground all winter to protect the stems of roses from the great changes in temperature, the best way of keeping them is to heel them in outdoors in any dry sheltered place, covering stems completely up with earth. No straw, corn fodder, or anything that will attract mice or other vermin should be used. From such a covering hardy roses will come out in spring in the best possible condition.

The only inconvenience of this method of keeping is, that when the spring comes late, they are not accessible for early orders. Hardy roses that are grown for two years are best left undisturbed, allowing them to make their second season's growth where they did the first. If covering is necessary it can easily be done by laying down stems close in the rows and covering up with earth from each side. Three good hands can cover up half an acre in a day. In spring it is very little trouble to loosen the stems with a fork or pronged hoe. With a little pruning they are ready for another season's work.

As a rule, pot-grown roses are better and much more certain to grow than those in a dormant state, but the plants are necessarily smaller, and it is probably more for this cause than any other, that the majority of buyers are unwilling to give the preference to pot-grown plants. A great advantage of the latter is, that they can be planted at any time during the growing season from spring to fall. Let any one who doubts this try both methods, and he will soon be convinced.

Vast sums are annually spent on roses imported

from France, England and Germany, all which arrive in a dormant state, and in the handling are subject to more or less exposure; the only merit of which is size. At the end of the first season's growth, if the losses of these imported plants are taken into account, the balance will be found largely in favor of the smaller pot-grown plants of home manufacture. Perhaps, in time, the current of trade may be reversed in this as in some other industries.

Rose growers might more frequently tell their experiences with benefit to themselves and the public generally. No one individual ever knows what all know. We can learn some things even from our failures. *Delaware, O. 2nd mo., 11, '84.*

THREE NEW PLANTS.

BY F. L. TEMPLE.

I have been looking at the work of propagating them to-day, and the spirit moves mightily to write out a description of three new applicants for positions in our gardens; and I know I shall earn the thanks of all lovers of good trees by so doing.

Cercidiphyllum Japonicum is a new tree with a tall, fastigiate growth, and cordate foliage, two or three inches long, roundish, and named from its resemblance to the cercis, in leaf. The new shoots are reddish, and the general clean and cheery look of the tree always brings to mind the rock maple, although they are quite dissimilar in detail. This is a tree so hardy that it has stood six or seven years at Boston, since the first seeds were planted, and has never lost a bud by winter-killing or any other such cause, and will be hardy at Bangor, no doubt. It is of great beauty, and of a distinct style all its own; in fact, there is hardly a native tree to match it in those qualities of growth which make a tree an object of admiration and a source of comfort even in winter.

I do not want to hang this tree with adjectives, as a fir tree with lights and colors at Christmas, for they tend to make old cultivators suspicious, so I will hold back all enthusiasm, and say, simply, that if this thrifty, clean, hardy and distinct tree does not make a place for itself among our leading trees, I shall be ready to renounce all claim to good taste in the matter of fine trees.

Two shrubs are the other things that claim a hearing, a Ligustrum and a Hypericum. Ligustrum Ibota comes from Japan, and has as distinct features, foliage glossy green above and red-purple underneath, and curved racemes of white flowers that suggest Leucothœ racemosa, and are as graceful and pretty as the best Andromedas. This is, so far as I know, the first Ligustrum that has proved valuable as a flowering shrub.

Lastly—we Americans are apt to put anything native last—a new native species of Hypericum, H. aureum. This species is, in brief, perfectly hardy at Boston, has flowers as large as those of the tender species, H. calycinum, and as double as dandelion blossoms, which they very much resemble. It is the only Hypericum that is worth cultivating in New England—all the rest are either insignificant in flower, or else are too tender to stand our severe winters. This species was discovered on the mountains of North Carolina a hundred years ago, and named by Bartram, and seeds of it were but recently sent to Boston by a botanist, and has never been offered in nurseries, I believe, before.

Somerville, Mass.

EVENING GLORY.

BY A. VEITCH.

For several years I have grown the plant noticed in MONTHLY for February, Ipomœa noctiphyton, and have had many opportunities to see it equal in attractiveness to anything yet said in its behalf.

Mr. Wooding is mistaken, however, in saying it is an annual, as here it has shown every characteristic of being a good perennial; so much so that we have repeatedly seen strong plants cut down and potted in the fall to supply cuttings through the winter, and when planted out in the following summer give a greater number of flowers than younger plants.

From the first I have regarded noctiphyton as an unfortunate name. It is near to grandiflora, but differs from that species in some important particulars. In grandiflora the peduncle is about two-flowered; stem and leaf-stalk pubescent; corolla rather deeply five-lobed. While the peduncle of so-called noctiphyton has an indefinite number of flowers; leaf-stalk smooth, stem beset with numerous projections which readily develop into roots when resting upon the ground; corolla entire, as in the common Morning Glory, and very fragrant. For these and other reasons, I have called it from the first Ipomœa noctiluca, as agreeing better with descriptions of that species than with any other, and also it expresses a leading characteristic of the plant—night shining—as well as the very good English name, Evening Glory.

[Where and by whom was "Ipomœa noctiphyton" described?—Ed. G. M.]

EDITORIAL NOTES.

RARE WATER LILIES.—The effort of Mr. Sturtevant, of Bordentown, New Jersey, to introduce the culture of water lilies and aquatic plants generally, deserves all the encouragement any of us can give. Few but those who have enjoyed the sight can fully appreciate the pleasure which an open air tank of these beautiful flowers affords. Mr. S. has now issued for free distribution a descriptive catalogue of his collection, and which will do much to extend the public knowledge of this interesting tribe of plants.

OPENING PUBLIC GARDENS ON SUNDAY.—The public gardens at Fairmount Park, the Zoological Society, and other places in Philadelphia, are open on Sunday without objection from the most fastidious observer of the Sabbath so far as we know; and it seems strange that any objection should be entertained elsewhere. Judging by an observation before the Massachusetts Horticultural Society, the practice is not general. Mr. J. G. Barker said, "that the experiment tried last year, of opening Forest Hill Cemetery to all on Sunday, had proved successful. The same had been done at Pine Grove Cemetery, Lynn, of which he is superintendent, and no injury had resulted." In Philadelphia the saloons would only be too glad to get the husband and father, could he not go to the public gardens with his wife and little ones.

GARDEN BEAUTY.—Rev. A. B. Muzzey tells the Massachusetts Horticultural Society that in the practice of horticulture in its highest branches three things are necessary—first, a practical knowledge; and to supply this want we have papers and discussions of a practical cast. Second, money is wanted; and, with a right spirit and culture, the more the better. He was glad to see men grow rich honestly, and furnish the means for refining and elevating pursuits. But something is wanted beyond producing marketable articles, however laudable that may be. Man has an inherent love of beautiful things, and through a taste for the beautiful products of horticulture a deep and glorious part of human nature is ultimately reached. Some are content for a time with the practical view, but sooner or later there comes a point where we must increase the taste for the beautiful. There is among the American people a great lack of culture and taste, but they are taking steps to supply it, and if this society does not assist in educating the taste of the community, it will, in part at least, have failed of its object. A man may be possessed of wealth, but there is something wanting to him if he has not a sense of the beautiful and does not know what a magnificent world we live in. Why has the Great Artist so clothed the universe in beauty, but that it may be appreciated and enjoyed by his children?

ROSE CATHARINE MERMET.—This rose is as popular in the old world as with American florists. It was raised by a French florist, M. Guillot, in 1869.

LESPEDEZA BICOLOR—as the Desmodium japonicum or penduliflorum is now called, is not two colored that we can see, but its grand purple blossoms make it one of the showiest autumn flowering perennials ever introduced. It has a woody habit, though dying annually to the ground.

RARE TREES IN HARRISBURG.—A correspondent sends to a contemporary a very interesting sketch of gardening about Harrisburg. We are told that the species of trees are so numerous on the Capitol grounds that the "florist" in charge intends soon to classify them; and among them is a fine mahogany tree—the only one in the country—and much more of the same kind. It is to be hoped that those who read this will not regard it as anything more than the belief of the person who wrote it.

NEW OR RARE PLANTS.

HOVENIA DULCIS.—A correspondent of the *Florida Dispatch*, referring to the note on Hovenia dulcis in a recent number, says the GARDENERS' MONTHLY does not say where Mr. Brackenridge found the plant hardy. Mr. B.'s place is at Govanstown, near Baltimore, Md.

ARTEMISIA ANNUA.—This is a new silver-leaved edging plant, native of Siberia, and commended by M. Andre in *Revue Horticole*.

PICEA OMORIKA.—Under this name the *Gardener's Chronicle* figures and describes a new spruce, named as above by Dr. Panac, from the mountains of Servia,—Omorika, the native name, having been retained for the species. It looks so much like our P. nigra, the true black spruce, and the description also tallies so nearly, that only for the knowledge that the Editor of the *Gardener's Chronicle* is one of the highest authorities on coniferæ, we should have been inclined to extend the geographical area of the black spruce, rather than make a new species. Dr. Masters, however, is rarely wrong in a determination of this kind.

RED-BERRIED IVY.—The English ivy has black berries, but there are numerous varieties, some even with yellow fruit. Now, we have a colored plate in *Revue Horticole* of a variety with red berries, like those of holly, only in large clusters, introduced by M. Besson, of Nice. The ivy does not fruit till it is of considerable age, and hence it is valued here solely for its leaves; but wherever it is hardy enough to endure the winter without injury, and could live a few years to get old enough to fruit, this red-berried kind would be highly appreciated.

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

DENDROBIUM PIERARDI.

BY JOHN MURCHIE.

This is one of the easiest of all the Dendrobes to grow, and will do well either on a block or in a basket; but a basket is the best, as it requires less attention. It is very graceful in habit, with slender, drooping stems thirty inches in length. The flowers, which are produced in twos and threes

along the sides of the stems for nearly their whole length, are about an inch and a half across, the sepals and petals are rosy pink, lip buff, with a few purple lines at the base. This is an Indian species, and requires, while growing, the heat of the intermediate house. The material I use in filling the basket is sphagnum moss and charcoal, broken into small pieces, placing a layer of old fern roots from a peat swamp in the bottom. But little water should be given until the young growths are about two inches long, then water should be given, and plenty of it, both from the syringe and the watering pot; in fact, if planted in above material too much water can hardly be given. After growth is completed, which is by the end of September, water should be gradually reduced until it is entirely withheld. While growing it enjoys plenty of shade.

The plant I send you photograph of I have grown from a small piece. It is now in full beauty, February 9th, and is much admired by all who have seen it. *Sharon, Pa.*

SEEDLING BEGONIAS.

BY G. H.

I have a lot of a hundred or more hybridized seedling begonias. They are more than a year old, and some of them are five feet high. The majority of them have been pinched back, and are from two feet upward in height. They are mostly hybrids of Begonia rubra, that variety having been used both as male and female parents in making the different crosses, with other varieties, including some bulbous-rooted ones. They show great diversity of style of growth, of form, size, and markings of the leaves; but the most of them have the leaves dotted more or less thickly with silvery white spots, which is entirely different from any of the parents. Judging from the size and health of the plants, in comparison with their parents, they are large enough to blossom. The questions I would ask you are these: 1st. Will they blossom or probably prove barren? 2d. If they will bloom, what age must they attain before doing so? If

there is a probability of their proving barren, I would like to discard them, for they take much space.

If you think this statement of my experience of hybridizing the different species of begonias and the progress I have met with of interest. I will be thankful for an answer to the above questions in the GARDENERS' MONTHLY. *So. Weymouth, Mass.*

[The plants will all flower, and probably this season. It must be very interesting to watch them as they develop. When they bloom we shall be glad to have the results for the magazine.—Ed. G. M.]

FERNS.

BY W. A. MANDA.

Who does not like this beautiful class of plants? Or what could be more interesting to botanists than to study the curious structure of their reproductive organs; or to a gardener or amateur to see side by side, the innumerable species and varieties, differing so much in structure of their fronds, from simple to compound, varying in form extremity, dentation, lobation and decomposition.

Ferns inhabit all parts of the globe, varying much in structure; some attain a height of twenty feet or more, while others scarcely rise an inch from the ground. So the mode of growth differs; some make compact tufts; some again send their creeping rhizome between stones and neighboring trees; some are ascending, others climbing; some send their fronds from a short caudex, while others have a high, tree-like trunk to support their noble heads.

Owing to the great diversity in their structure, habit and geographical distribution, ferns can be used to every purpose. The hardy ones for covering walls, rocks and marshy places; for decoration, again, are the greenhouse and stove kinds of great value. The tree ferns are generally adapted for large conservatories, while the smaller ones are unsurpassed when intermixed with flowering and ornamental leaved plants; and, again, there is scarcely a bouquet made that the lovely fronds of maiden-hair fern would not adorn. Most ferns are found growing in moist places, well sheltered against wind and direct rays of the sun; along the river banks is their favorite place, but some grow in marshy places, partly in water; some again on dripping rocks, or in caves, where they never receive any sunshine and but little light; and it is only a very limited number that are found on dry rocks exposed to wind and the burning sun. These conditions are very essential for the grower to know, which should be imitated as far as practicable.

Like the rest of plants, so ferns have their enemies; the two worst are the small snail and the thrips. The small snail is very destructive, especially in spring, when the plant starts to grow. As soon as it is noticed that any of the young growths have been eaten away, the plants should be looked over, destroying all that are caught, and then putting round the pots, or benches the plants stand on, a row of dry ashes or sawdust, which sticks to their body and thus prevents them from crossing it. In case of thrips, the most affected parts should be cut away and the plants sponged over with a light solution of soap water. Different kinds of scales, also mealy bugs, sometimes make their appearance, and they should be kept down by frequent inspection and brushing off all that can be seen.

From a cultivator's point of view, they can be divided into stove, intermediate, cool and hardy, tree and filmy ferns. The stove kinds require a mean temperature of 65°, the intermediate 50°, the cool, or half hardy, should just get protection against frost, while the hardy ones, if planted in the condition they are naturally found growing, require scarcely any care. Tree ferns may be classed with the intermediate, while the filmy ferns are divided into stove and cool; the latter stands a few degrees of frost without injury.

The best time for planting or re-potting ferns is just as they show signs of growing in the early spring, especially the deciduous species, which hold the majority among the hardy ones, but are few among the indoor kinds. In re-potting ferns, the most important points are good drainage, firm potting, elevating the plant a little above the rim of the pot or pan, so that water does not lodge in the crown of the plant, and last, but not less important than the preceding, is to avoid over-potting, so that when transferred into a size larger pot they keep good and sound ball; and it is only in this condition you see healthy plants. After being re-potted, which takes place about the month of March, water should be given very sparingly until the new roots have traversed the added compost. The atmosphere in the house should be kept humid by frequently dampening the floor, with only very little ventilation, while the temperature should be raised 5° to 10°. This treatment will help the young growth and roots considerably, but in measure, as the fresh growths and roots advance, more air should be admitted and a liberal

supply of water given all the summer and fall. In winter the temperature should be lowered, and only enough water given to keep them alive; by this method they will receive a good rest, and make much more vigorous growth the following season.

Shading the houses is another point, nearly all the ferns requiring more or less of that attention, especially in spring, as the young shoots are easily burned, and thus disfigure the plants for the season. But shade should be given only in sunshine, and removed afterwards, in order to give all light possible to get their growths well matured. The tree ferns require scarcely any shade, while again every ray of sun should be kept from the filmy kinds.

In regard to syringing, the filmy ferns should be seen to twice a day in summer, and once in winter; the tree ferns on every bright day in summer, seldom in winter. It is the general opinion that ferns should not be syringed, but I found that a light syringe on a bright morning, about once or twice a week, in the growing season, is very beneficial to the rest of ferns, with the exception of gymnogrammas, which should never be syringed.

The propagation is effected by dividing the plants in the spring, just when they start to grow; they are also very readily raised from spores, and many interesting new varieties were raised by this method, which is the best mode of propagation, where these plants are wanted in quantities.

Botanic Gardens, Cambridge, February 16, 1884.

HOT-WATER HEATING.

BY DENYS ZIRNGIEBEL.

Few persons are aware of the capacity of water for heating if properly applied, especially when more or less pressure, as with steam, is applied. On that principle, no boiler is required, plain coils of pipes (I use 1¼ inch) is all that is needed, at the rate of one foot of coil to every twenty of piping. I am using now, one inch, inch and half, and two inch pipes, and give the preference to the last size, as offering less friction, better circulation, and containing also a larger body of water. Now the advantage claimed by this method, is economy in the first cost of boiler and piping, as under compression we get as much heat from a two inch pipe as of a four inch one with no pressure, while there is only one quarter of the quantity of water to heat. The circulation is extremely rapid, and once established is maintained with a very small fire; with the same quantity of fuel we will send the heat as far again as steam will. These assertions are actual facts, as our houses were heated by steam originally, which was rejected as not being economical. A double or treble coil (circular) may be used if more power is needed, set in brick work and fed from the top, as any common cylinder stove. The whole top ought to be made movable so as to enable to clean the coils when needed.

Half a gallon to every 100 feet of pipe is necessary and sufficient for expansion. The rate of pressure is from five to twenty pounds, according to the weather.

We are heating a range of four houses on that principle, each about 100 feet long. We are well satisfied with it, as it does not require any more care than a common furnace, with comparatively little fuel, and do not hesitate to recommend it to any person starting anew. We do not claim any prior right to the principle, but leave every body free to succeed with it as it does here.

Needham, Mass.

NOTES ON GERANIUMS.

BY SOME GEEN.

If we except Begonia rubra there is nothing scarcely so continuously in bloom as the geranium. They are always with us, and cheap, while orchids are dear, and only bloom a few weeks. We had Calanthe vestita and Dendrobium nobile by way of variety in our little plant room this winter. These are easily grown and not very expensive. I wanted a Disa grandiflora that was $4. Mr. Saul showed me a "wee bit" of an orchid, grown for its fine foliage, that cost him four guineas. I didn't want that. Any one can grow the Epiphyllun truncatum, and one with fifty perfect flowers beats many orchids. So if you have half a dozen pots of Amaryllis in the cellar to be brought out in succession, you can have them three months, but these things are not always with you like the geranium. The Cyclamens are also very fine for winter, but they are lazy fellows and want to sleep all summer. I find the following geraniums good winter bloomers. White Vesuvius, Emile de Girardin, rose; Mad Thiebaut, carmine violet; Guillion Mangelle, carmine crimson; Henry Cannell, fine scarlet; Lemoine Cannell, rich amaranthine red marked purple; Representant Gaudin, deep velvety crimson. These are also good for bedding out, except the first, which is single. I cannot find a single geranium that is fit for bedding out. Queen of the West is as good as any to hold its

flowers, but every shower spoils it for a few days. To make a geranium bed interesting, one should have at least fifty varieties, and get something new every year. I mean new to those who get them, as most of the new high priced plants are not as good as many old ones. So if you raise fifty seedlings, some of them will be good, and every one of interest till after it has bloomed.

It is impossible to tell colors from catalogue descriptions. Robert George is called more decided in color than Deputy Taflize, while it is lighter and only a shade darker than H. Cannell. Richard Brett is called "very double;" still it is not near as double as McLeod, and is a coarse grower, a poor variety. I did not take it up. Prokop Danbeck is called pure soft rose, while it is nearly identical with Leon Simon, which is described as red flamed with salmon. Remarkable, a much improved Earnest Lauth, with me is not as good. La Constitution is lighter than Asa Gray and not as good, while Mrs. E. G. Hill is better than either. I have had two varieties for Mr. Chas. Pease, but neither was as good as Mad. Thiebaut.

Lemoine Cannell and Charles Darwin are much alike. Both might have come from the same parent. One description answers for both, only the first is a shade darker, which can only be told by holding them together. Their amaranthine red and purple give us a new color for the geranium, and are very welcome.

THE EFFECT OF DULL WEATHER ON THE OPENING OF FLOWERS.

BY S. RITCHIE.

The recent dull weather has been rather trying on both gardeners and florists, and whether flowers were grown for pleasure or profit, it was hard in either case to get anything like a satisfactory return for outlay. The effect of the dull weather on orchids coming into bloom was anything but cheering. I had some plants of dendrobium and cattleyas coming into flower, and the buds either turned yellow and died, or else opened very imperfectly, and wanting in color. The cause I attributed to the dull, foggy weather. Plants of the same varieties coming into flower early in the season, when we had more sunshine, were well flowered and perfect in color. Perhaps some of the orchid growing fraternity will be able to throw some light on the subject, and give their experiences; as experience is the best teacher in all things connected with the gardener's art.

Pottsville, Pa.

ORCHIDS IN APRIL.

BY W. A. MANDA.

By this time most of the potting and re-surfacing of orchids will be done, and where this is not the case, no time should be lost, and in proportion as the plants push up their growths, they should be seen to. Yet this must be done with caution, not only that one rule cannot be applied to a house, either stove or cool, but even among the many genera the different species require different treatment. For instance, in the case of dendrobes, it is not advisable to keep them at a uniform state of moisture, nor to re-pot them at the same time. As soon as the flowers fade the plants begin to grow, and this is the best time to put them in order for the growing season. Thus, the D. nobile, D. Devonianum, D. Wardianum, D. crassinode, and others come first, while the later kinds, such as D. macrophyllum, D. densiflorum, D. thrysiflorum, D. moschatum, and many more, should be kept at rest until they show flower spikes, when they should be put in higher temperature and held moist, to help the flowers to develop. The Cattleya crispa, C. lobata, C. amethystina, C. intermedia, and some of the early plants of C. Mossiæ, should have more moisture than the rest. Lælia purpurata and L. superbiens should also be put in the growing quarter, and especially the former, which will soon show buds, should receive a good supply of water.

All the Odontoglossums, Oncidiums and Masdevallias still in want of any attention in the way of re-potting or re-surfacing, should be seen to at once, before they get into active growth. The Cypripedium Sedeni, C. insigne, C. venustum, C. Boxallii, C. Harrisonii and C. Dominii, if needed, could be safely re-potted. The Phalænopsis that have done flowering, such as P. amabilis, P. grandiflora, P. Schilleriana and P. Stuartiana will resume their growths, and therefore should be put in order for the coming season. Most of the Ærides and Vandas could be re-potted; this is also a safe time to lower them, considering they have some good roots left. The useful Calanthe vestita and C. Veitchi will be starting to grow, and should be potted before they are much advanced, but those that are still dormant better be kept cool, in order to retard them, so as to have succession. The atmosphere should be kept moist, especially on fair days, when a good deal of ventilation is given. The green and yellow fly will make their appearance on the young growths and should be kept down by brushing them off with a soft brush. Smoking is a good remedy for

this pest, but smoke is very injurious to most orchids, not only to their leaves, but the roots also.

At this time shading must be put in order, but should only be used during a few hours when the sun's rays are strong and direct. Besides many of the plants described last month, the following are in flower. Vanda gigantea. This is the noblest in habit of its genus, if not of orchids. The leaves are about eighteen inches long and three broad, very thick, gracefully bent. It bears two spikes, the individual flowers are three inches across, of yellow, brown and crimson colors. Dendrobium chrysotoxum, a sturdy-looking plant, which produces spikes of deep yellow flowers; the lip is finely fringed. A good plant and one easy to grow. Phaius maculatus. This fine plant is worthy to be in every collection for its fine foliage alone, which is large, green spotted with yellow. Two strong spikes from one bulb bear over thirty large flowers; the color is sulphur yellow, lip nicely folded. Arpophyllum giganteum—a majestic plant, having long, arching leaves of dark green color. The flower spike is columnar, densely set with numerous rose and purple flowers. It is a beautiful and distinct looking plant. Cypripedium insigne, var. Maulei. This is a good deal better than the ordinary form. The leaves are narrower, flowers of medium size, the upper half of the dorsal sepal is white, the blotches are larger and of deep purple color. Maxillaria acutipetala. The leaves are long and narrow, flowers of yellow, white and dark brown color, produced singly from the base of the bulb. Dendrobium thrysiflorum. This plant sends up a direct stem from twelve to eighteen inches high, from which are produced large pendant spikes, with twenty to thirty flowers on each. The petals and sepals are pure white, the lip yellow. A very showy plant of easy culture.

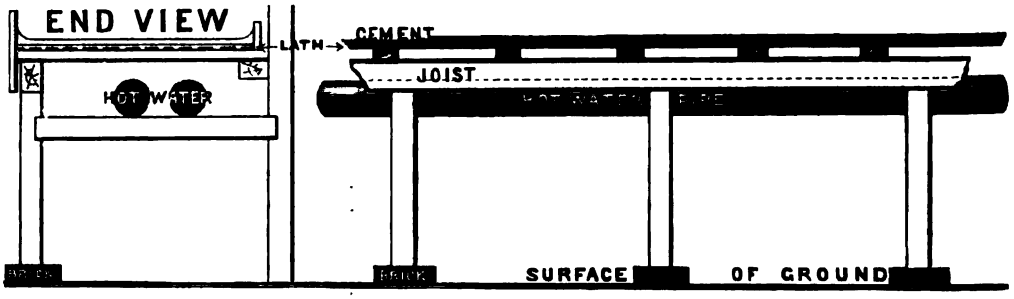
In the last number, at page 71, was printed L. Pinelli instead of L. Pinelii, O. vescillarium for O. vexillarium, C. Boseallii for C. Boxallii.

Cambridge, Mass.

BENCHES FOR GREENHOUSES.

A friend called my attention to your article on benches for greenhouses. I have tried Peter Henderson's plan. It is good, but expensive. I have since adopted a plan just as good and less than half of the expense.

First, I make the post or support of the benches of 3x4 hemlock joist. I cut them to length, and dip the end in a pot of paint. This end I rest on a brick, the brick being bedded above the surface of the ground. I next notch into the post one inch deep for a cross bearing of 3x4 joist. On this cross bearing I lay my hot water pipes up close to the under side of the bench. This gives good bottom heat to the pots. I next lay on the top of the posts lengthways of the bench a 3x4 joist. I next cross the bench from this joist to a back support with four inch by 1¼ inch spruce strips placed ten inches apart. On these spruce strips, I nail common masons' lath, such as are used for a lath and plaster partition in a house. The lath should be a little distance apart so as not to touch. I next cover these lath with one inch of cement concrete, formed of equal parts of cement and coarse sharp sand. I next cover the bench with from one to four inches of coarse sharp sand. In the four-inch bed I plunge the pots, and I get a hot bed heat in this way to the roots. I have benches built on this plan for three years, and the lath are not discolored. If water settles on any part, I open holes between the lath and between the cross supports. The cost is about the same as a common hemlock board bench. I always put a five-inch board strip on the edge at the back of the bench, one inch from the side of the house, and I turn up the cement against this strip. This keeps the moisture of the bench from rotting the house, and allows the hot air to come up on the front of the bench. I nail a board in the usual way under my benches, by the side of the path. I grow Ferns and Caladiums to use for cut flowers. They grow finely. I send you a rough sketch with this.



Brooklyn, N. Y., March 5th, 1884.

HOT WATER FOR DESTROYING INSECTS.

BY ERNEST WALKER.

Hot water at a temperature of about 120° I find the most effective remedy I have ever tried for destroying insects on plants in the greenhouse. The plants may be either immersed in it, or the hot water may be applied with a plant-syringe, which is the more convenient of the two modes of applying it. If applied with a plant-syringe the water may be a few, say 10°, hotter. While death to insects the hot water seems not to injure the plants in the least. I find one drenching of hot water with a plant-syringe has been sufficient to rid plants of red spider, where time after time cold water drenchings had been in vain.

At the last meeting of the Indiana Horticultural Society, in December, an extensive amateur fruit grower of this vicinity spoke of having used hot water—pouring a quart about the root of each tree—for the borer, which of course was done in early spring while the trees were yet dormant. In this manner he went over his young peach orchard of several thousand trees; and while the trees had previously suffered badly from the borer, he never saw signs of them afterward.

New Albany, Indiana.

ADORNMENT OF A LADY'S HAT.

BY A BUFFALO MAN.

In a recent MONTHLY you mention Mahonia aquifolia leaves as becoming very fashionable in Europe. It seems we Americans cannot start a fashion, even if we are first to see the beauty and propriety of anything. We must wait for our cousins across the Atlantic to take the lead; then, like sheep, we follow, be it good or bad. This time they were not first in making use of the Mahonia leaves. Here they have been in fashion for ten years or more. Many a buttonhole bouquet has been carried away from here made of Mahonia leaves and rose buds.

Four years ago my sister asked what kind of flowers I would select for a summer hat. I said if I were to wear flowers, I would have the genuine or none at all. That with Mahonia leaves and roses and a few other flowers of the season, a hat could be trimmed much nicer than any I had ever seen with artificial flowers, and I would like to have her try. She at once agreed to try the experiment. That hat was a success all through the season, judging from the many remarks made about it and the frequent question, "Where did you get your hat, I like that trimming?" No one suspected that the flowers were not counterfeit like all the rest.

EDITORIAL NOTES.

EPIPHYLLUMS.—The *Deutsche Garten Zeitung* gives illustrations of the common crab cactus, Epiphyllum truncatum, grafted on the Pereskia aculeata, which shows it to be a first-class stock for this species. The plant is growing in a large tub, but the head is at least four times the size of the tub, and the stem four times the height, and there are some hundreds of flowers open on the plant. It must be a rich sight to see, and have taken many years to grow.

AZALEA, MISS BUIST.—This interesting variety referred to from an English source in our last, was raised from seed by the late Robert Buist, and the whole stock purchased by Mr. B. S. Williams of London. It was named "Miss Buist" by Mr. Outram, the agent of Mr. Williams. One special merit in the variety is the remarkable thickness of the corolla, and which enables it to remain a long time without wilting when cut and placed in water.

WINDOW PLANTS IN THE OLD WORLD.—In American towns and cities there is but a comparatively limited demand for window plants from the florists; but in the Old World growing plants for window culture is a very important branch. The different variegated forms of Japan Euonymus are particularly popular. The *Gardener's Chronicle* says that one firm at Islington grows 100,000 of these plants for the London market alone. It is found to stand smoke very well.

THE SCARLET GERANIUMS.—Garden terms are often useful, though they may not always be scientifically correct. We all knew one time what we meant by Scarlet geraniums, though many of them had gone on to other colors besides scarlet; but the botanist showed that there was no difference between geranium and pelargonium, and at once we had no more scarlet geraniums; they were Zonale pelargoniums, though many had no more dark zones to the leaves than in former times there were all scarlets among the colors. Trouble is again experienced, and now we note in England they go by the name of market pelargoniums.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Handsome forms are as desirable in fruit as in ornamental trees. No winter pruning will do this exclusively. It may furnish the skeleton—but it is Summer pinching which clothes the bones with beauty. A strong shoot soon draws all its nutriment to itself. Never allow one shoot to grow that wants to be bigger than others. Equality must be insisted on. Pinch out always as soon as they appear, such as would push too strongly ahead—and keep doing so till the new buds seem no stronger than the others. Thus the food gets equally distributed.

When the strawberry crop is about to ripen, mulch with clean straw, to prevent rain soiling the fruit. Short grass from the lawn is often used; but it mildews as it decays, and detracts from the flavor of the fruit. Hot suns increase flavor, and strawberry tiles were once in fashion to put around the hills, which, by absorbing heat, added greatly to the fruit's rich quality. All that we have said of strawberries supposes them to be fruited on the hill system, with the runners kept off. Those who desire the best results, will grow them no other way; but many grow them very successfully in beds, believing that though they may not have as many large fruits, they have a greater weight in proportion to the labor bestowed.

Where water can be commanded, there is nothing so profitable as to well soak the soil about small fruits; first about the time that they have set their fruit. Much of the value of this operation, however, will depend on the nature of the soil. The advantages are least in a tenacious, and greatest in porous soil. It is said that an animal derives most benefit from food when it is hungry before it begins to eat; it is certainly so with plants. Water applied to soil already wet is an injury; and water never has so telling an advantage on vegetation as when every leaf is about to wither up for the want of it. A plant that never seems to want water is in a very doubtful condition in regard to its health.

To keep fruit varieties healthy we must watch every symptom of disease, and promptly check it. The strawberry particularly is liable to a disease called "burning in summer." This is a fungoid disease; it only propagates in a very high temperature, and the best guard against it is a partial shade. Where a bed of strawberries is liable to this disease, the best plan is to have a few rows of corn planted at intervals across the beds, to guard against the hottest of the sun's rays. The grape and the strawberry are excellent crops to have together for the reason that the grape trellisses give a little shade to the strawberries, while the strawberries make a dry and cool surface, which is so much appreciated by the vine. Where spotted leaves appear on any plant, arising from mildew or rust, it will be well to pluck them off immediately. It will often keep it from spreading badly.

In sowing seeds it is well to remember that though the soil should be deep and finely pulverized, a loose condition is unfavorable to good growth. After the seeds are sown, a heavy rolling would be a great advantage. The farmer knows this, and we have often wondered that the practice never extended to garden work.

In the cultivation of garden crops, the hoe and rake should be continually at work. Weeds should be taken in hand before they are barely out of the seed-leaf, and one-half the usual labor of vegetable gardening will be avoided. Hoeing or earthing up of most garden crops is of immense advantage in nearly every case. One would suppose that in our hot climate flat culture would be much more beneficial; but a fair trial, say on every other row of a bed of cabbages, will show a great difference in favor of the earthed-up plants. It would be easy to explain the reason of this, but in this column we try to confine ourselves to "hints," and leave reasons to our other departments.

COMMUNICATIONS.

HENDERSON'S WHITE PLUME CELERY.

BY N. ROBERTSON.

I am unable to say whether this and one used in Paris is the same or not, but the description of both is identical in every respect. So much is it valued there that no other finds a ready sale in

their market; no safer indication can be given of its merits than this. It is said to have originated with a market gardener having grown it for a year or so, not noticing anything particular about it until another party, who saw it knew its value, procured and introduced it.

I see your notice of a yellow variety also in Paris, perhaps the same, only the one I have seen written about is white; not only the stems but the foliage is said to be beautifully variegated and worthy of the florist's notice, a beautiful ornament on the table for decoration. As to Dr. Puffer's remarks about its flavor, no safer criterion to judge that by can be given than the French taste; and there it is said no one cares to use any other. Exposure to sun does not always deteriorate flavors, and his comparison to the potato I think is hardly fair. *Supt. Gov't Grounds, Ottawa, Can.*

PRUNUS PADUS AS A STOCK FOR THE CHERRY.

BY PROF. J. L. BUDD.

I notice your comment on my remark that Prunus Padus was used in North East Europe for a cherry stock. Possibly I was wrong, yet north of the Carpathians the P. Padus and P. Mahaleb run together in a perplexing way. You will notice that De Candolle speaks of the marked variations of the Padus, and he places it in the same section and sub-section with the Mahaleb. Dr. Koch, of Berlin, places them much the same, and Cosson and others of France place them close together, and say "flowers of Mahaleb in simple erect corymbs odorous," while Padus has "flowers in drooping cylindrical racemes, odorous." On the East Plain the gardeners call their native wild form "Padus," yet critically it may be Mahaleb. North of the Caucasus I was continually puzzled with the changes of species as found South of the Caucasus and the Carpathians.

We have something of the kind in the inter-continental air of the Mississippi Valley. Catalpa speciosa, box elders, white ash, and red cedar are good examples. We may sow seeds of green ash, as we find it with glabrous shoots, etc., on our creek bottoms, and a part of the seedlings will be glabrous and a part pubescent. Our box elder is hardy in Dakota and Manitoba, and has lately been found hardy at Abbotsford, Canada, and Montreal; your form is with us as tender as a peach tree. It also differs in leaf, flower, character of wood and habit of growth, as does our catalpa. Our native cedar is absolutely hardy on the most exposed northern prairie, while those grown from Tennessee seed are few of days and full of trouble. We have very many questions of this kind of which Menzies spruce from the east and west sides of the Rockies is another example.

Agricultural College, Ames, Iowa.

[Notwithstanding Professor Budd's illustrations, we should hesitate to accept the proposition that Prunus Mahaleb and Prunus Padus ever run together in any way. There surely must be a mistake somewhere.—Ed. G. M.]

VARIETIES OF SELF-BLANCHING CELERY.

BY A. LOBINGIER.

Like your correspondent from Brockton, Mass., in March number, I, too, have been in doubt whether I should say a word about the White Plume celery.

In the season of '81 I bought my Golden Dwarf celery seed from Peter Henderson & Co., and in one lot of 20,000 there came about 300 stocks that were identical with the description of his White Plume, as now offered. These 300 were so distinctly marked and so uniform that we determined to test its keeping qualities. One of my workmen remarked at the time that he would not be surprised to learn of it being offered in a couple of years as a new variety. It decayed early with us, and was very inferior in quality. Unless I should be reliably informed otherwise, I should judge it to have originated in the way it appeared with us, being saved and perpetuated by Mr. Henderson. And if it be the same, I regret that it has been sent out from so reliable a source, for no one, I apprehend, will grow it for market the second time. As a plant of great beauty, or as a novelty, it might do very well, but to send it forth as something that will prove profitable for the market gardener to grow for market is surely a mistake. I am certain Mr. Henderson would not grow a crop of it and expect to sell it in any market where such a variety as Golden Dwarf is known.

Steubenville, O.

[There are scores of varieties of the ordinary white celery, scores of varieties of red celery, and we should suppose there will be scores of varieties of self-blanching celery. Our opinion was based on the variety sent out by Mr. Henderson as the White Plume, and has no reference to other varieties of self-blanching celery, which may or may not deserve distinctive names.—Ed. G. M.]

EDITORIAL NOTES.

REFORM IN NAMES.—It is pleasant to note that the suggestion of Col. Wilder, supported by the American Pomological Society, regarding reform in names of fruits, is taking root everywhere. We are not likely any more to have such long names as "Singular triumph of the back garden gate" to a strawberry, or "Grand beauty of the hog pen corner apple;" and if the actual raiser, whom we would delight to honor, should happen to have the name of Aminidab Folderollolderol, he had better apply to the Courts to get his name changed before he applies it to his "justly celebrated and inimitable seedling grape." The sun of long names has set.

IRRIGATION IN THE EAST.—Col. Wilson tells the Massachusetts Horticultural Society, as we have often told the readers of the GARDENERS' MONTHLY, that even here in the east, where we may depend fairly well on rain, it would often pay the gardener or farmer to get aid from irrigation. "It may therefore be moderately estimated that two tons of hay per acre would be secured in addition to what is now obtained, and this upon ten acres would amount to twenty tons of hay as a modest estimate of the yearly advantage of the possession of these facilities for irrigation. If the land otherwise has proper culture and nourishment this increased yield would amount to forty tons. There is positively no way in which our dairy farmers can increase so greatly the productiveness of their grass land.

"For vegetables and small fruits the value of water would be greatly increased in dry years, while for strawberries the benefit would be greater than anything of which cultivators have hitherto dreamed. Drought is the constant dread of the strawberry grower, as the strawberry is a thirsty plant and seldom gets water enough.

"That whenever a supply of water can be obtained, the cost of pumping it will not exceed three cents per thousand gallons for an amount of ten thousand gallons per day, pumped to a height of fifty feet above the surface of the water, which cost will include the necessary repairs and depreciation and interest on the cost of the necessary fixtures and reservoirs."

THE DOGS OF LONDON.—A market gardener near London contracts for all the stray brutes taken up and killed by the dog-catchers. During the summer months his receipts of dead dogs exceed a thousand a week.

FRUIT AND ITS MARKETS.—The first thought of fruit growers is to look after cheap land. The distance from market is left to railroad companies to settle. Of late years growers have been learning other lessons. It is the labor, and not the cost of land, which ruins a fruit grower; and land at high figures, where the expenses of labor and marketing are less, has been found the most profitable. Edwin Satterthwaite, about ten miles from the heart of Philadelphia, has found such a fruit location very profitable, and so have the Shearers, of Reading, Pa. This town has but 50,000 inhabitants, yet it consumes all the fruit from Shearer's 100 acre farm, besides much from numerous other growers. And one of the brothers has been encouraged to put in 365 acres in fruit near the town. The 100 acres of Christopher Shearer made sales of over $12,000 last year.

STOCK FOR THE APRICOT.—In France the apricot is grafted on almond stocks. The Royal is the most popular early variety for market.

BLEACHING CELERY.—W. H. Benjamin, of Bridgeport, Conn., ties newspapers around celery, and blanches it better, easier, and cheaper, he says, than by earthing up.

EARLY AND LATE PEAS.—As a general rule there is no struggle as to who shall be last in the race. To be first is to be best. But in the case of the pea there is much rivalry in England as to which shall be latest of all. This is not thrown to the author of all evil, as the "hindmost" in everything else usually is.

SCRAPS AND QUERIES.

FORCING STRAWBERRIES.—"S. M. J.," Toledo, O., writes:—I wish to ask if any readers of the MONTHLY have had experience in raising strawberries under glass or in what you would call cold frames or house? I have just built a house covered with glass, on posts set in the ground, that contains 830 square yards for raising lettuce, and think it will produce strawberries, to perfection."

ANOTHER HYRBID PEAR.—"A. D. B.," writes: "I to-day send you by express six pears, seedlings from a tree sixteen years old, and never known to blight. Supposed to be crossed with the Sand pear and Bartlett; at least the two trees stood close together where the seedling appeared. Would be pleased to have your opinion of it. Fruit has been kept in good order till May, and in

one case till July 4th, where party had a good fruit house."

[We think there is no doubt of this being a hybrid, as suggested, and it is an excellent one. The flavor reminded us of the delicious Passe Colmars we used to eat in the long time ago—a variety suggested also by the form and appearance of this, though smaller in size.—Ed. G. M.]

CROSSING SPECIES OF STRAWBERRY.—There is a general impression that in cross-fertilizing or hybridizing strawberries, the pollen of the Alpine strawberry, Fragaria vesca, will not prove operative on any other species. Mr. Bennett of Trenton, informs us that he has had evidence to the contrary.

HOP CULTURE.—"J. J.," Mitchell, Indiana, asks: "Can hop culture be made a success in this climate? If so, where can I get information as to culture?"

[We have seen hundreds of acres in the northern parts of Michigan and Wisconsin, most likely profitably growing, but we do not know of any work especially devoted to hop culture.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

CHESTNUT TREES ON LIMESTONE SOIL.

BY PROF. GEO. B. GROFF.

In a late number of your journal, the above matter was mentioned. Chestnut trees do not grow on limestone soil in this valley—the Buffalo. I have asked some very intelligent persons who have lived here all their lives, and they tell me that they never knew a chestnut tree on the limestone soil. Yet it grows abundantly on gravels and sandstones. But, in Chester County, Pa., they do grow on limestone soil, and I have clearly before my mind several such trees of magnificent proportions, growing right over beds of limestone. Some stand directly over limestone quarries. One, a magnificent young tree, probably thirty-five years old, stands along the Chester Valley Rail Road, between Howellville and New Centreville. The "limestone," of Chester Valley, is however, really a true marble. The limestone of this part of the State is but little metamorphosed. The chestnut grows in great luxuriance on both of the hills bordering Chester Valley. The South Hill is of hydro-mica schist, or "slate," while the North Hill is sandstone. The soil formed by the decomposition of the "slate," is exceedingly thin, while that formed from the sandstone is better, but very liable to dry out in the summer. Now, a point of interest is, that the chestnut timber on the South Hill, is much the straighter and heavier, better in every way. I have also noticed that the limestone soil of this valley (Buffalo), is peculiarly adapted to the growth of the locust tree. Wherever there is a piece of neglected ground, there a grove of these trees soon springs up. This is not so true of the limestone soil in Chester County.

Lewisburg, Pa.

HARDY MULBERRIES.

BY GEO. G. ATWOOD.

I send you by this mail the tips of scions just cut from two trees of New American and Downing's Improved mulberry, which stand in an exposed position on the ridge near our office. The pith of these scions, you will notice, is not discolored, and it is worthy of remark, that, aside from other cold weather, we have had it 16° below zero this winter, and I think this "counts one," in favor of the hardiness of these closely allied varieties. The trees have stood in grass most of the time for fifteen years—have not been manured, and have been abused by constant close cutting for buds and scions. The New American is our favorite. It regularly produces full crops of fruit, from one to two inches long, over a bearing season of six weeks. The fruit is jet black when ripe, and is easily gathered by shaking the tree over sheets. The New American is a stronger grower than the Downing, and the young trees are better in many ways. Either one of these varieties is ornamental,

has large, entire leaves, and is most satisfactory in every respect.

While I am on this subject, I wish to say that I think the Russian Mulberry (so called) is, if not a "fraud," no better in any respect than the Morus alba, a variety of which it is said to be.

We have the "Russian," growing aside the Morus alba, and can see no difference in the growth, hardiness, or in any other respect. They are not distinguishable. A friend of mine has fruited the "Russian," and in every way it corresponds exactly with a dozen famous mulberry trees which have stood for thirty years on the campus of Hobart College. *Geneva, New York.*

[It is worth remembering that hardiness in a mulberry, and in many other things, is not a question of temperature—it is a question of vital power to resist evaporation. When a plant loses its power to resist evaporating influences, it dies. Hence, many plants live through some winters or in some localities where the thermometer is very low, when the atmosphere is moist and cloudy, that would die under a much higher temperature when under bright light or dry atmosphere; and again, when the vital power of a plant has been weakened by long culture under unfavorable conditions, it will die under precisely the same circumstances through which a healthier stock will live. For instance, Morus multicaulis, a variety of Morus alba, was hardy enough when first introduced—but under the forcing methods to propogate enormously, its vital power weakened, and then it was it became "tender," and "diseased." It will be found just so with any other variety of silk-worm mulberry; all of which are varieties of Morus alba. They are all as "hardy as a rock," in the general sense. We doubt whether any one can claim hardiness over another, until its power of resistance has been weakened by a succession of unfavorable influences.

The specimens sent had certainly got through this winter very well.—Ed. G. M.]

SOILS AND FORESTS.

BY JOHN C. SMOCK.

The communications in the forestry section of the GARDENERS' MONTHLY for November, 1883, and January and March of the current year, relative to the growth of chestnut upon limestone soils, suggest the presentation of some notes under the above head.

That the nature and variety of the forest covering are to some extent determined by the physical and chemical constitution of the soil, sub-soils and the underlying rock formations, is well known to all geologists who have had much field work. So far is this fact recognized that in some cases the forest gives a clue to the geology. Granitic and hornblendic districts are distinguished by variations in the forest species. Limestone and sandstone, and the various calcareous and siliceous outcrops can be traced in their boundary lines by the forest. The slate rocks differ from the adjacent limestone belts. In the northern part of our country, or north of what is now recognized as the southern limit of the glacial phenomena, there is more or less mingling of rocks and earth in thick deposits, which cover the rock strata, and the mixed character of the forests is evident. But where this glacial covering is wanting and the soil is made up of the debris of the underlying rocks, as is the case in the country south of this old, continental moraine line, the forest bears a close relation to the rocky floor below, and the botany and geology are truly sister sciences. For example, in the Highlands of New Jersey and in the South Mountain range of Pennsylvania, there are two well-marked types of gneissic rocks. And they are distinguished by their differences in the timber growing upon them. The feldspathic variety makes a light-colored, open, sandy soil, and the forest on it is largely chestnut and oak; the hornblendic rock makes a dark-colored, ferruginous and clayey soil, and oaks and hickory, with very little chestnut, make up the most of its forest. Descending into the limestone and slate districts of the great Kittatinny Valley, there is a noticeable lack of chestnut timber and a predominance of oaks (mainly white) and hickories. Black walnut also marks the limestone; on the slate this tree is comparatively rare. On the other hand, the wild cherry is common to the slate, but not to the limestone. The sandstones and the siliceous conglomerates are marked by more pine and rock oak with some chestnut. The various rock species which predominate in the broad, red sandstone belt of central New Jersey and southeastern part of Pennsylvania have produced sandy loam and clay soils, and the differences in the forests are here also recognized. One characteristic of the forest on the red, shaly areas is the almost entire absence of chestnut. The trap-rock ridges which are in this red sandstone country bear more chestnut.

As Fuller, in his "Forest Tree Culture" says, the chestnut appears "to prefer a dry, sandy or gravelly soil to an alluvial, clayey, or very moist

one." Bryant also correctly states it—when he writes in his "Forest Trees," that the chestnut "seems to prefer the sides and neighborhood of hills and mountains, with a dry, sandy or gravelly soil." And, generally calcareous soils and the soils of limestone formations are not of this nature. The physical texture of the soil is apparently unsuited to this tree. But there are soils on some of the more highly crystalline, limestones, or marbles; as for example, some in Berkshire County, Mass., in Westchester County, New York, and in Northern New Jersey, which are largely made up of the fine rhomboidal fragments of this rock, and are, therefore, sufficiently open and dry to produce a luxuriant growth of chestnut. Much of the limestone of Chester County in Pennsylvania is of this nature. As a rule, the blue, sedimentary, limestone formations in all the Middle Atlantic States, cannot be said to be the home of the chestnut tree. Its most luxuriant growth and its largest size appear to be attained on our granitic and gneissic rock soils of the Appalachian chain. *New Brunswick, N. J.*

SOME NOTABLY LARGE TREES.

BY J. W. L.

Observing that the "Forestry Department" of GARDENERS' MONTHLY is open for the entry of big trees, I would like to have permanently preserved there this record of one—or, rather, the remaining lower portion of one—seen by me last autumn in southwestern Indiana. The tree in question is a sycamore, growing within a few rods of the bank of the Wabash, upon a well-wooded tract (which for quite a number of years has belonged to the family of the writer) known as the "Mussel Mound tract," ten miles due west of Princeton, in Gibson county. Most of the trunk has fallen, but the hollow portion remaining and growing, is some 12 to 15 feet in height along a part of its periphery, though a portion of the latter is but about a foot above the ground. Eleven strides (33 feet) is the distance around the tree, and eleven feet its diameter, as measured a foot above the ground. From the side of this shell, a few feet from the ground, a new tree, eighteen inches in diameter, is growing. This would scarcely be called a branch, inasmuch as it is not likely that it started to grow until after the main body of the tree—part of which, in a decaying state, is near by—had fallen. So much for the monarch of Mussel Mound woods. I may add that close by are a dozen fine sycamores, each about the size of the well-known tree of the same species which shadows the pave of the Main street of Germantown, above Manheim street. The only one of them which I measured I found to be 18½ feet in circumference at four feet from the ground. The master woodman who was engaged in cutting off some of the timber of the tract, expressed himself as being much relieved when told that he was to "spare" those trees.

Of chestnut trees, the largest I have seen is one standing near the dwelling of Joseph Rhoads, Marple, Delaware county, Penn. When measured by me nearly four years ago, it was found to be 27 feet in circumference, at three feet from the ground. The soil, I think, is not limestone.

The Balm of Gilead tree which honors the several houses comprising Balmville, a mile or more north of the residence of the late A. J. Downing, at Newburg, New York, was also measured in 1880, being then 19 feet in girth, at the height from the ground of the low stone wall near by.

SEXES OF CHESTNUT TREES.

BY THOMAS T. NEWBY.

From the editor's remarks on my article, in the last MONTHLY, in regard to chestnut and beech on limestone, I observe that I unwittingly blundered on another question of interest, viz.: Whether an isolated chestnut tree will perfect fruit at all, or not? The trees I referred to as producing fruit, are thirteen in number, all planted on the same lawn, and near enough to each other, I should think, for fertilizing purposes. Twelve of them are about thirty years old, and one six or seven years older, and some of them forty feet high. The proprietor of the premises informed me that the older one dropped its fruit prematurely for several years, but for a number of years past it has perfected its fruit, and the cause may be that its female flowers have been fertilized by pollen from the other trees. The other twelve have all borne fruit a number of years, but he reports that some, on all the trees, every year fail to arrive to maturity. The burrs on my tree were almost full-sized when they dropped. In 1881 and 1882, there were just a few burrs on it, but, as last year, nothing in them. Now, I planted my tree for fruit, but the nearest tree of its kind is nearly half a mile away, and if it is going to behave itself in that style during its "single blessedness," I shall have to secure a life companion for it. In the meantime, if I were to fertilize a few of the female flowers with pollen from another tree, at the proper time, the coming season, would such be likely to

produce fruit, and help "settle" the question? At any rate, I shall watch my tree with increased interest. *Carthage, Indiana.*

[In settling a question in the positive and decided manner in which scientific men like to have questions settled, very great care is required to guard against a chance for error to slip in. Now, in regard to the fertilization of the chestnut, it is not certain that pollen from another tree is required. The most that science tells us is that facts seem to tend in that direction. It is awaiting the positive demonstration of the fact. Now, if we find a tree half a mile from another, producing no fruit, while others under the same climate or conditions in a body together are fertile, it goes far to confirm the suspicions of science; but still it is not the exact evidence science requires. The proposed experiment, to get a branch with the early male flowers, and place it over the branches with the females, is a good idea. In some parts of the world, this has been done with palms successfully. —Ed. G. M.]

EDITORIAL NOTES.

TREES ON THE PRAIRIES.—It is remarkable how, when a paragraph gets a start on the rounds of exchanges, it finally changes to a shape in which its own parent does not know it. Just now we meet with the following:

"Mr. Thomas Meehan believes that we have nearly reached the solution of the cause of the absence of trees from the prairie. 'It is not climatic. It is not in conditions of soil. The real cause is probably to be found in the annual fires which have swept over the prairies from time immemorial, killing the young trees before they can grow large enough to resist the heat.'"

Thomas Meehan never said anything of the kind. There is no more reason why fire should kill trees or shrubs than grass or herbaceous plants. If burnt at the top they would sprout out from the root in most instances, and thus live on for ages, though not perhaps getting old enough to produce seeds.

ARBOR DAY.—Our Western friends rarely send us notices of what is to be, time enough for us to be of any service to them. From Mr. J. T. Allan, of Omaha, we had, on April 1st, notice that Arbor Day in Nebraska would be on April 16th, and that a first premium of $50 and other smaller premiums, for the largest number of trees set out on that day, would be awarded. It is no use to make this announcement now. We only refer to it to show that if our Western friends don't get the aid of this magazine in their various public enterprises, it is wholly their own fault.

FORESTRY LITERATURE.—Picking up a Sunday-school book recently, a picture was noted of Moses on his return from Mount Sinai. Each hand held a tombstone, evidently weighing about 150 pounds or more with the ten commandments engraved thereon, which, in his impetuous anger, he was about to smash into numerous fragments by throwing on the ground. We believe he would be a much madder man had he lived to this day, and had to wade through the swampy mass of literature which, by virtue of our editorial position, we have to do. We begin to feel as a much worse example to a Sunday-school child than the picture of Moses afore-cited. For with this horrid collection, it is very hard to keep one's temper. Forestry is injured, not served, by these publications, and an act of Congress is badly needed to keep the crop of scribblers on forestry down.

Before us is a book issued by quite a reputable publishing firm. A considerable portion of "reasons for planting a forest," is devoted to showing that the leaves of forest trees "oxygenate the atmosphere." Any one who reflects must know that a forest of oaks or maples would do no more "oxygenate" than a field of clover or a crop of corn, and as the leaves on a forest are only "oxygenating" four months in the year, it would be much better to "oxygenate" by a growth of blue grass which has "breathing foliage" the whole year through. But it is useless to follow after all these gukes. Wherever there seems to be a popular boom in anything, there is generally found a class of noodles very anxious to appear as the prominent movers in rushing it along; and which, for a time, appears as a truly powerful set.

THE BLACK WALNUT IN GEORGIA.—Black Walnut timber is worth, in Georgia, $100 per 1,000 feet, inch plank, and trees ten years from the root, are now known ten inches in diameter. This shows the annual thickness of wood to be half an inch. This will astonish the old world folks, who look on the raising of a forest as the work of a long life-time, and will tend to appease the apprehensions of those who wonder what is to become of us when all our forests are gone. When it pays to plant timber, we could get a good supply on twenty years' notice.

ANOTHER WHITE PINE—exclaims the *Gardeners' Chronicle*. This time it is from northern Mexico, and is Pinus Ayacahuite. There is beauty in common names, if not at all times serviceable.

SCRAPS AND QUERIES.

ON THE WOOD OF QUERCUS LOBATA.—C. S. Sargent, writes: A correspondent in California, sent me the following interesting and important note upon the durability of the wood of Quercus lobata. The specimen is still perfectly sound.

"It has occurred to me that it might interest you to know something of the durability of the California oak (Quercus lobata), of which I have some evidence; and I have therefore taken the liberty to send you by mail a sample (a cross-section at the ground-line) of a stick which, until last December, had stood in the ground exposed to the weather for more than fifty years, according to information, the correctness of which I cannot doubt.

"When I speak of durability, the heart portion is meant; for the sap or outside part of the tree soon decays. During a residence of now more than forty-two years in California, I have used more or less of this timber for fence posts; and the fences in some instances have stood twenty-five years, and even longer. But had pains been taken to select the heart only of this oak for the posts, I have no doubt the fence might have been made to last as easily fifty years. The part of the said stick below the ground line was more decayed than that above; therefore, the sounder end of the sample was the upper. I tried so to wrap it as to show even the grass growing about it.

Now as to the age of the said stick: "It was taken a few months ago by myself from an old mound on my farm. The mound had been the site of a large Indian village, and this stick had evidently formed a support for one of the houses or native huts which in shape are round. This and many other similar mounds here, forty years ago to my own knowledge, were already old and abandoned; and without the vestige of a house, except that on the circular rims that marked the site of huts, there stood here and there, protruding from the ground, some of the sticks used in building. Some of the Indians still live on my farm, occasionally one very old, over seventy. They say that the village your sample was taken from has had no people 'since the time when all the people died.' That was a well known date to the earliest Americans in California, to wit, 1826, (fifteen years before my arrival in California in 1841) when the small-pox almost literally annihilated the Indian tribes of this (Sacramento) valley. This sample must therefore have an age of not less than fifty-seven years."

SPANISH CHESTNUTS NORTH.—A correspondent from Buffalo, N. Y., says: "'S. A. W.' asks if Spanish chestnuts would grow as far north as latitude 42½°. We are so near (about 42¾°), that it may be of interest to know that they are not hardy here. Of two importations we did not succeed in growing any above three feet. They were planted on sandy soil, but fully exposed. If sheltered would probably do better."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

INSECTS AS CONVEYERS OF THE BACTERIAN CONTAGION.

BY WM. CREED.

As a concluding paper we now reach insect life and influence in a bacterian point of view, and ask, Is it possible that the light tread of a simple fly, mosquito or ant can communicate the bacterian contamina to other sources unsuspected by us? The query in itself looks most uninviting, yet it may be said that giant intellects have not deemed it beneath human thought or observation to trace out the workings of insect life, either for good or evil. Now, it is evident that if the bacterian theory be correct in the case under consideration and as propounded by Professor Burrill in the *American Naturalist* of July, 1881, may not the trampings, punctures, borings, cuttings, bruisings, grindings, and even sawings of some insects, have their due influence and thus leave openings of access for the easy transmission of microscopical germs?

Upon the subject of flies, my own observation touching their movements upon diseased pear

trees suggested an article which appeared in the *Fruit Recorder* of August, 1883, and headed as follows, viz.: "Are the house-fly and blow-fly the scavengers or disseminators of pear blight?" This thought originated from the fact of our frequently seeing flies and even mosquitoes with fixed probosces upon the exuded sap and absorbing it at such a rate of speed that it was both amusing and instructive.

Dr. Thomas Tavlor comes to our aid concerning the capabilities of flies as carriers or propagators of disease in a paper read before the American Association for the advancement of Science. He entrapped several hundred flies to test the point in view. His experiments were with the red rust of grasses and resulted in proof positive that they are capable of conveying such spores to plants and other bodies; but concluded that the larvæ of the fly will sometimes consume microscopical germs as well as distribute them. The same investigator also found the suction tube of a fly's proboscis sufficient in diameter to admit of taking up the spores of cryptogams, trichina, etc., as also the eggs of anguillulæ, and even the anguillulæ themselves, of which there are upwards of one hundred known species; and he found in one case a fly's proboscis containing not less than thirteen.

Dr. Grassi also verifies this experience and reaching beyond by his discovering that flies take up the ova of various worms and again discharge them in their fæces unchanged. He also found many eggs and numerous parasites in the intestines. Virchow in his investigations concerning proboscidian insects in connection with malignant diseases, made insect contamination a study, and says most probably these insects effect inoculation; but flies which make no wound may also implant the poison upon the skin by their soiled wings and feet. If then we behold a goodly number of flies intermingled with mosquitoes energetically consuming the sap exposed to their view and link this with the bacterian contagion, what shall our verdict be in this case, especially when we find them apparently slicking themselves up by the nimble movements of their feet and legs upon their bodies and thus distribute the contaminated sap upon themselves before departing in their winged flights for other fields of mischief.

The mosquito may even show more activity in this direction by its well-known puncture influence. This insect has been studied by men of eminence in China, Australia, India and Egypt, as well as this and other countries, and many diseases are placed to his account upon substantial demonstration; but it is not known whether the poison of the mosquito is saliva, or whether the fever-producing element be a bacillus with which the proboscis is loaded at the time of contact with whatever he may select to deposit his venom. At any rate he is just as likely to disseminate the bacterian contagion as any other insect, when it is stated that a million bacterian germs are capable of resting upon the head of a pin; a few thousand germs would therefore be no impediment in his flights should they have accumulated upon him; and we may here relate on the authority of naturalists that all puncturing, biting and stinging insects are females of their species, so that we may know whenever we send one to "the tomb" when in the act of leaving a "proof impression" upon our bodies, we lessen the prolific sources of insect reproduction. The bites of some insects are harmless and have no venomous power of their own, but can carry poison from sources of infection to healthy districts that would otherwise have escaped the contaminating influence. The puncture needles of Pasteur would be impotent without first loading them with infective bacteria, and so with proboscidian and other insects as conveyers of disease. They must first mingle with the bacterian germs, the transmission is then readily effected in their movements from tree to tree whenever the proper conditions are met with.

As a reminder of the proper time to watch insect activity in the case of pear blight, those interested should stroll among their trees at the time the sun is rising, the exuded sap is then easily detected at its starting point, and insects are busily becoming insatiated with the offering thus exposed to their instinctive life, and by this means, aided by the sun's rays, the morning supply soon disappears; but other supplies will be forthcoming from morning to morning until the disease has exhausted itself, and to the extinction of the tree's life if this deadly course be allowed to run. From the fact of the sap appearing in the morning and as readily disappearing at this time from the above causes, it would appear that it is not the gentle rays of the morning sun that set bacterian life in motion, but the noonday heat when "up in the nineties," accompanied with warm showers, and thus by infusion with the remaining dry sap present the hotbed of destruction.

At some future time I may offer a supplementary paper upon the newer and the revival of some older, germicides, bacteriacides, antiseptics and disinfectants that have a direct bearing upon the

subject under consideration, for in this field of research our hope of conquering the deadly effects of bacteria is now apparent and demonstrable by such men as Koch, Cohn, Sternberg, and an army of other renowned investigators.

59 Gregory St., Rochester, N. Y.

[Dr. Joseph Leidy, the eminent naturalist of Philadelphia, demonstrated years ago by actual observation that diseased matter from sick patients was distributed by the agency of the house-fly. This is of interest as a matter of exact knowledge; but there are so many other agents of distribution that one more or less is of little practical account in the great battle.—Ed. G. M.]

WONDERFUL TENACITY OF LIFE.

BY PROF. GEO. G. GROFF.

A few months ago one of my students brought me a fine specimen of our common fresh-water leech. Not wishing to throw it alive into the alcohol, I placed it in a beaker containing a little water, and added a considerable dilute hydrocyanic acid. After some time I found that it had no effect on the animal, and poured into the beaker a large amount of a saturated solution of cyanide of potassium. The animal disliked the presence of this reagent and tried to get out of the beaker, but after remaining in it a half hour or more, and still not being dead, I removed it, and placed it in a vessel of clear water. In this it lived for several days. *Lewisburg, Pa.*

[In some recent remarks on the tenacity of life in shell-fish before the Academy of Natural Sciences, by Mr. John Ford, reference was made to the tenacity of life of Busycon and other mullusks. Specimens of the former were found to be alive a considerable time after being half cut out of the shell, and specimens of other species, collected by the late Rev. Dr. Beadle in the desert of Arabia, were able to crawl about when moistened after being packed in a dry box for three years.—Ed.G.M.]

EDITORIAL NOTES.

CLIMATE OF ALASKA.—In some of his letters to the Philadelphia daily papers from the Pacific coast, Mr. Thomas Meehan stated that, for some reason or other even the reports of government officials had given the people an impression that Alaska was a frigid, worthless tract of land, and that it was a waste of effort to even give it a government. On the contrary it was blessed with a remarkably rich and vigorous vegetation, and even so far north as Sitka the thermometer rarely fell below zero. This statement excited much surprise, and some doubt. Now we note a letter in the *Scientific American* of March 29th, dated Fort Wrangel (which is in lat. 56°) dated Feb. 24th, stating that the lowest figure reached the past winter was 1° below zero.

Instead of a worthless bit of country, we expect to see the time when there will be a railroad all along the coast to the mouth of the Chilcat, then across the peninsula to Behring straits, and from thence by tunnel under the 30 miles of water, to St. Petersburg and Paris—the whole way from Philadelphia to the gay capital by land, to the great relief of sea-sickly people. It is a far less impracticable idea than a railroad across our continent, over desert and mountain, ever was. The connection now with the North Pacific R. R. can very easily be made, and indeed we should not be surprised before long, to find this idea used to "bull" that stock.

THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.—It is well known that the Academy of Natural Sciences of Philadelphia is the recipient of important collections under its present organization. The Vaux collection of minerals which came to it last year, is one of the most valuable bequests made for many years. All the departments have increased rapidly, the botanical especially so. During the Centennial year the institution moved into its present quarters which gave double the room of the old building. Now this is found too small, and the citizens of Philadelphia are raising $200,000 to afford additional room for the enormous increase. This paragraph is penned in consequence of an editorial in the *American Naturalist*, which would be remarkable if it were not characteristic. that the institution "is not likely to be the recipient of important collections under its present organization."

LAVATERA ARBOREA VARIEGATA.—At one time the florist and the botanist, if not avowed enemies, regarded each other with suspicion. The Botanist, at any rate, complained of the love of the Florist for monstrosities, and for the hybrids and crosses which threatened in his estimation to drive systematic botany into dire confusion. Now they welcome each other into their respective fields, and find pleasure and profit in each others company.

In such cases as we now illustrate, which is a florist's selection, the mere lover of studies in plant

life can also find interest. Usually variegation seems to follow the same law which attends the production of colored bracts or petals, in which we see a considerable weakening of vital power before the colored leaflet is produced, and in variegated plants generally we find precisely the same loss of vital power which accompanies the production of the external parts of the inflorescence. In this particular case the variegation is said not to be accompanied by this vital check, and if so the reason therefor is well worthy of scientific investigation. The plant has been introduced to the notice of cultivators by the enterprize of the well known firm of Wm. Bull, of Chelsea, near London;

Lavatera arborea variegata.

but the London *Journal of Horticulture* gives the following account of it:

"Very rarely indeed does it fall to our lot to figure for the first time, and introduce to our readers, a new border plant so striking in appearance as the variegated Tree Mallow which we now submit. When Mr. Smith first sent us leaves of his new acquisition, we were almost startled by their markings; and on subsequently receiving flowering sprays of the plant, we were still more convinced of its distinctness and beauty. The irregular mixture of very dark green, pale greenish grey, and pure white, impart to the plant a remarkable appearance. The plant appears to us to occupy a position amongst border plants similar to that of the Variegated Maple in shrubberies. We may add, that although the variegation is so pronounced, and the white so pure, there is not the slightest indication of weakness in the sprays, but, on the contrary, they are as strong and vigorous as green specimens."

"Mr. Smith, from whom the entire stock has been purchased, writes: 'I have propagated many plants, and I have not yet seen one but what is beautifully variegated. I have proved that it comes true from seed, but it must be understood that it is something like the Variegated Maize, does not show variegation in a young state. There is not the least doubt but it will be a most effective plant for large beds and borders. Last winter it stood out without injury; it is best, however, to pot some up, and keep them in a cool house, and turn them out in the spring; but a slight protection outside would be sufficent to keep the plants undisturbed in beds or borders, which is desirable, for in spring of the second year the beauty of such plants is beyond description.'"

It ought to prove a valuable plant for American summer gardening.

ZYGOPHYLLUM.—When giving the illustration at page 121 last month the pretty orchid Zygopetalum was misprinted Zygophyllum.

PTELEA APTERA.—Some few years ago there was quite an excitement in regard to a substitute for the Hop, in Ptelea trifoliata, the seeds of which, used as hops, obtained for it the name of "Hop tree." There is another species, in the far west, Ptelea angustifolia; and now Dr. Parry describes a third species, from lower California, under the name of P. aptera, the name from the seeds having no wings as in the common species.

ARCTOSITAPHYLOS OPPOSITIFOLIA.—This genus which is so well known from the curious "manzanita"—A. pungens—has had a new one under the above name added to it by Dr. C. C. Parry. The whole genus has been revised by him in the Proceedings of the Davenport Academy of Sciences.

SCRAPS AND QUERIES.

PEACH BUDS.—A correspondent from Berlin Heights, Ohio, says: "The extreme cold killed all the peaches, and hurt grapes some, but I think the pears are not hurt; 17° was the coldest last year. 3° killed most of the peaches."

[Thermometer is no guide to the amount of cold necessary to kill a peach bud. We have known them killed at 5° below freezing point, and then again to get safely through when the glass has indicated zero.—Ed. G. M.]

WHAT IS A POISON?—"A. J. M." says: "Appearances are often deceptive. Educated sense is not always common sense, as it is generally special, rather than general. Hardly two will define poison alike. Poison has some special morbid effect, and some of these effects depend upon idiosyncrasy. The Chinese primrose, in one case I know of, is a horrible irritant, even worse than poison ivy, Rhus toxicodendron; this may be exceptional, some can handle the latter with impunity, they are exceptional. Horses will eat poison ivy sooner than cabbage, and I would sooner eat a leaf of it than a leaf of tobacco, yet should prefer to rub the tobacco leaf on the skin. Poison also depends upon the amount and form in which it is taken. That which will kill a dog may not affect a pig. Peach pips are said to contain prussic acid, yet pigs will fatten on them. When a farmer finds half a dozen lambs helpless and stupid, frothing at the mouth and grinding their teeth, and die from the effect of eating kalmia leaves, he calls it poison. I should call it poison, until physiologists found some better term to explain these symptoms and effects, even if the chemist should fail to find a trace of prussic acid in the kalmia."

[To be sure, there is some soundness in the popular idea that what is one man's meat, may be another man's poison; and yet there is something specific in the toxic idea, quite distinct from that suggested by our correspondent. King Henry the Eighth is said to have died from a "surfeit of strawberries," but history does not record that he was poisoned. In like manner, if a lot of half-starved sheep or lambs die from a surfeit of kalmia leaves in a snowy time, when they are ravenous for something, we do not know from this that the kalmia is poisonous.—Ed. G. M.]

DEAD LIMB EVAPORATION.—"A. J. M." writes: "While a dead limb may be injurious, I do not believe it transpires moisture as fast as a green one in leaf, and if the moisture was excessive, its

evaporation would be beneficial. Where can we find the facts and figures of this evaporation?"

[A dead limb can scarcely be said to transpire, which is a term wholly applied to the action of a being with life. Moisture simply evaporates from a dry stick, and, by the power of capillary attraction, as fast as it dries, it will absorb moisture from any thing to which it may be attached that is moister than itself.—Ed. G. M.]

FREEZING OF SAP IN APPLE TREES.—"A. J. M.," Berlin Heights, Ohio, says: "I see by the *Country Gentleman*, March 13, Prof. Burrill, of Illinois, says the sap of the apple tree does not freeze till 12° degrees below zero! I have seen tender things with bark frozen loose at zero, or somewhat protected."

[There is no better illustration of the confusion of ideas that prevails about the "freezing of sap" than the above paragraph affords. Some contend that sap does not freeze at all, others that it does whenever the thermometer falls below freezing point. Then there are some who believe that the sap in a tree may become solid ice, and that it may thaw subsequently, and the tree go on again with its functions. Others, who believe that when once a tree has its liquids congealed by frosts, life departs.

Now, before one can make anything out of the remark attributed to Professor Burrill, it would be necessary to know to which of these classes he would be referred. Unless he believes that the tree is killed when the liquids freeze, how are we to know that the liquids freeze at 12° below zero.

Our own views of the question are so well known that they need not be repeated here.—Ed. G. M.]

AVERAGE TEMPERATURES.—It is generally believed that however high or low may be portions of seasons, the mean average of the whole will be about the same. From the following note from "L.," a Germantown, Philadelphia, correspondent, it appears that this may not be always so:

"Although the weather of the past winter and of the opening spring has been, perhaps, exceptionally variable, I had not thought that the temperature of the first week in this third month of the year was greatly below the average, until I compared its marking in my "weather diary" with those of previous years. Not for twelve years—not since 1872—has there been any approach to it. It will suffice to give the average of the first four days of the month, for the past six years, the hour when the mercury was taken having been 7.30 A. M. For 1879, the average was (omitting fractions) 30°; for 1880, 33°; for 1881, 30°; for 1882, 49°; for 1883, 33°; but for 1884, only 14°; again striking the average of the five years, as above, from 1879 to 1883, we have but 35° as compared with this year's 14°."

FREEZING OF SAP IN TREES.—"A. J. M." writes: "One could ask a thousand people who had cut frozen timber if the sap freezes; all would probably say 'Yes.' When the peach is exposed to 20° or 30° and the wood and bark are ruptured, what does it unless it is the sudden expansion of the sap caused by freezing? Cold expands and contracts ice. Ice or frozen sap will flow under pressure, and pressure enough would supply a flow of ice for all required evaporation, while if the wood fiber was not hardy enough to sustain the pressure it would be ruptured by the freezing."

[We have never known any one to contend that sap will not freeze. If such there be, he may see icicles of frozen sap, often a foot long, pendent from a wounded branch of maple tree, any time in Philadelphia during the spring of the year.

What is contended is, that sap cannot freeze without rupturing some tissue and that this ruptured tissue is either already dead matter, or will speedily become so by the rupture; and this is just what our correspondent shows to be the case.—Ed. G. M.]

THE HONEYSUCKLE APPLE.—From a number of correspondents who have written about the honeysuckle apple, we select the following, as giving some points not offered by others whose notes have been already given.

Mr. Jacob Manning, of Reading, Mass., says: "In the March number of the GARDENERS' MONTHLY, you have, under the head of 'Scraps and Queries,' remarks on the 'Honeysuckle Apple.' It is called here 'Swamp Apple.' It is white to pinkish white. It is sometimes eaten by children, and is harmless. It grows here exclusively on 'Azalea viscosa,' or white swamp honeysuckle. The Azalea nudiflora, pink flowering, is not a native of the swamps near me, so I have not seen it, or that variety of the Azalea. It is a fungus; at the spot where it appears, the bark dries, it is well to cut back the branch to a point below where the swamp apple appears. The Azalea will bear any amount of cutting back. It is really a proper plant to make hedges of. It would afford a mass of fragrant white flowers in June, of larger size than the flower of Japan quince. It is as hardy a plant as the latter. I

predict, in the near future, its use as a hedge plant, also the red-barked Cornel or Cornus sanguinea —both are native plants, bear pruning well, and are adapted to a variety of soils.

"The day, or fashion of close pruning to an exact line on the top and sides of all sorts of hedges, evergreens and all, ought to pass by. A more lasting hedge is secured by less frequent and close pruning to exact lines. It has a tendency to weaken it in some places. To keep a hedge healthy, it must make and retain a new growth on all sides. I had 3,500 feet of evergreen hedges, and see plainly what is best for my hedges."

From Mr. E. Holley, Hudson, New York, we have the following: "In your February number, Jonathan Primrose wants to know the botanical name of Honeysuckle Apple. This same shrub is also known by the following names: Upright Honeysuckle, Pinxter Flower, and Swamp Pink. This is an old friend of my boyhood, having often gathered, in western Berkshire, Mass., its beautiful, rosy-purple, sweet-scented flowers, and also gathered the fruit under the name of Honeysuckle Apple, which, at that time, I enjoyed very much. The name of this shrub is "Azalea nudiflora." Flowers in May before the leaves are fully grown. Quite common in the forests of the Northern States."

LITERATURE. TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

THE JEWISH CITRON.

BY RABBI M. SPITZ.

You have very kindly called my attention to an interesting article on "The Jewish Citron," contributed to the February number of the GARDENERS' MONTHLY AND HORTICULTURIST, by Dr. Vladimir de Niedman, of the U. S. Botanical Garden, Washington, D. C. I regret exceedingly not having read another article on the subject in a former number of the same magazine, to which Dr. Neidman refers.

Ethrog (not "esrog") is identical not with the fruit Hadar,* but with the fruit of the tree Hadar, this word signifying in the Hebrew, "beautiful," "magnificent." The word "ethrog," according to a modern Hebrew scholar, reminds of the "athrogna," in Syriac, which means "orange," (notice the similarity in the two words, "athrogna" and "orange") or "tharog" in the Persian and Arabic. Dr. Neidman in his article says:

"In order to excite and aggravate our friends, we (children) used to title this fruit 'Adam's apple,' taking the ground that this was the sort of 'sour apple' Adam was tempted to eat in the 'Garden of Eden,' upholding that the teeth-like impressions on the rind were a sufficient proof thereof."

The fact is, that they—the children—could not have excited nor aggravated the Jews, for the simple reason that, if they did say that, they only voiced an old tradition,† as recorded in a book well-known to almost every Israelite in Russia, from where the doctor hails.

The "ethrog" is one of the four kinds used in the synagogue‡ as a sort of festive nosegay in the hand of the worshiper, the other three being a branch of the palm tree, some boughs of the myrtle, and common willows of the brook; with these four in hand, the Israelite appears before his God on the feast of Tabernacles, "when ye have gathered in the fruit of the land," (Leviticus 23, 40) expressing his heartfelt gratitude for the manifold gifts of nature. The "ethrog," besides reminding the followers of Moses of their wonderful past history, represents the highest form of development in the botanical world, as does the "willow of the brook" that of the lowest, thus symbol-

*The English translation of III B. M., 28, 40, as rendered in King James' version, is wanting in the spirit of the Hebrew tongue.

† Midrash Rabboth to Genesis.

‡ In America, in some of the Reformed Temples, its use has been abolished.

izing the thankfulness of the servants of God for the least as well as for the greatest blessings that earth can produce. Even the most casual observer must at once recognize the beauty of this custom. The Talmud furnishes the following description of the tree Hadar, and of its fruit, which may serve as an explanation "why," as the editor of the GARDENERS' MONTHLY asks, "this particular variety of Citrus medica should be set apart for this purpose, and be regarded as so essential a part in the ceremony." Its fruit, meaning that of the Hadar tree, grows often before the leaves; the taste of the wood is exactly the same as that of the fruit; the tree bears fruit all the year round; both the wood and the fruit are eaten by men; when the young growth appears on the tree, the older and ripe one is still there, and you can behold sometimes a mixed crowd of ripe and unripe, of small and large ethrogs, upon the branches of the Hadar tree. It grows near any water, and can easily be cultivated, either by natural or artificial irrigation; both the tree and the fruit are truly "Hadar," that is, magnificent.

The same Hebrew scholar to whom I have referred above, quotes from Reichenbach's Flora Germanica, who says, on page 840, speaking on the citron and orange species: "These trees seem to me the real end and the highest key-stone in the whole domain of vegetabilia," etc., etc. No wonder that, for sacred purposes, such as Thanksgiving, the ethrog, certainly the most beautiful of its kind, should be selected.

I have written these lines hastily, for your information, and you have my permission to publish them if you deem fit. *St. Louis, April 2, 1884.*

EDITORIAL NOTES.

PUBLIC PARKS IN PHILADELPHIA.—With the many demands on his time, it was no easy matter to get Mr. Meehan to accept the honor offered him of a seat in the City Councils of Philadelphia. But one of the leading motives which finally induced an acceptance was, that he might possibly succeed in getting for the people of Philadelphia, a system of small parks or squares over at least that portion of its hundred square miles of territory not yet actually closely built over. It is a great pleasure to say that this legislation has now been accomplished; and small squares or parks, of not less than ten nor more than twenty acres, are to be located at once, as roads are located, and taken for use as roads are taken when dense population moves up to them. Under this plan, it is believed Philadelphia will be better provided with small parks than any city in the world.

A GARDENER WANTED BY THE POLICE.—One Charles Huber appeared in our office in search of a gardener's situation. His references were James Vick, and other well-known names. Inquiry a few days afterward, at his boarding-house, developed the fact that he had been there but two days, and when he disappeared, there disappeared also one overcoat, a number of shirts, and other articles of wearing apparel and five dollars belonging to a poor woman. He is a German, of about middle age, talks and writes very good English, has evidently a very good knowledge of gardening, and is very quick and taking in his ways. He is middle aged, middle sized, of light complexion, and has a scar in the neck, which he represents as having been from a bayonet wound in the war for the Union. He says he was in a New York regiment, and has a full pension.

Kaupp and Rasener, printers, 337 N. Fourth street, Philadelphia, would be glad to get on the track of him.

PROF. S. B. BUCKLEY.—This well-known botanist, whose death we briefly recorded in our last, was born in Torrey, Yates Co., New York, in 1809. His father was Major Robert Buckley, who was an officer in a New York regiment in the war of 1812. The son obtained a collegiate education in what is now the Genesee College, at Lima, New York, from whence he entered the Wesleyan University, of Middletown, New York. His health breaking down under his scholastic studies, he took up with botany and mineralogy, as open air occupations, with the result of a complete restoration to health, after which he took a full collegiate education, graduating as Master of Arts in 1836. In 1837 and 1838, as we find from Torrey & Gray's "Flora of North America," he made botanical collections in Virginia and westward to Illinois. In 1838 he joined Drs. Powell and Spillman in an excursion into Alabama, exploring caves, and adding much to our knowledge of mineralogy and palæontology. While here, he was offered and accepted the Principalship of the Allentown Academy, in Wilcox county, Alabama, a position he held two years, making, during leisure time and vacations, large collections in every department of natural history, many of which were sent to the New York Lyceum. In 1842 he discovered

the bones of a species of zeuglodon, the skeleton of which is now in the Warren Museum, at Boston. In 1843, with a horse and buggy, he started on his famous trip which resulted in probably his richest botanical discoveries, and on which trip was found the Buckleya, as already noticed. This was on the French Broad river, near Warm Springs, and the few bushes then seen were still found growing there by the editor of this magazine a few years ago. In the course of 1842 and 1843 he took a course of medical studies at the College of Surgeons, in New York, and again in the spring of 1843 started on a scientific exploration through Florida. Here he was again fortunate in adding to our knowledge of natural history, one of his new shells being named Unio Buckleyi by Isaac Lea. There he caught fever, and barely got through with his life, and had to return. His father presented him with a farm of 400 acres, on which he resided till 1855, still pursuing his scientific studies in connection with Dr. Sartwell, of Penn Yan. His desire for knowledge, however, induced him to sell and go West, and in 1855 he settled in Yellow Springs, Ohio, as a bookseller. In 1857 his wife died, when he soon after broke up housekeeping, his two children being taken in charge by their grandparents, and again he started on a scientific exploration to North Carolina. Buckley's Peak, one of the highest elevations in the Smoky range was measured by him on this trip. In 1859, the publishers of Michaux & Nuttall's *Sylva* decided on issuing some more volumes to bring the knowledge of American forest trees down to date, and engaged Mr. Buckley to prepare it for them. Desirous of investigating from his own knowledge, he at once started on a long journey, with the view of specially looking into the vegetation of Texas, which was unknown to Michaux or Nuttall. In Texas he met Dr. Shumard, and joined him in the geological survey of the State. Dr. Moore subsequently became State geologist, and Mr. Buckley obtained the appointment of first assistant. The war breaking out, he started North through Mississippi, Tennessee and Kentucky, with such plants as he could take with him, the balance and best collection not getting through. He reached Philadelphia finally, and spent the autumn and winter of 1861 and 1862 at the Philadelphia Academy in communicating his discoveries to various bodies, and prepared a paper on his plants for the *Proceedings of the Academy*. Many of the species he then described were found to have been already named, and his work was necessarily criticised by those whose duty to science demanded the thankless task. It was always a sore subject with Dr. Buckley. This much may be said in his behalf, that it was a great feat to bring back, under so many difficulties, the package of material, poor as it was, and he probably trusted too much to his memory on the better specimens which he had lost; and, again, the specimens which he had for comparison with his own were by no means as rich or well-authenticated as they would be found at this day. But for all the mistakes then made, many of the species proved to be new, and his name still stands with them. In 1862 he became connected with a sanitary department of the army, and continued with the army of the Potomac to the close of the war. In 1866 he was appointed State Geologist of Texas; but in 1867, the prosecution of the State survey was suspended, and not again resumed till 1874, when he again resumed the work, publishing the first annual report in 1875, and the next the year following. During the few past years he has been working in connection with the Forestry Department of the tenth census, and the American Museum of Natural History, of New York. This brief account of his life-work will show how active and how useful a life he has led.

A few years ago he established a permanent home on a small farm near Austin, neatly fenced with that valuable product of Texas, the Osage orange; and the numerous fruit trees, greenhouse, and flowers, made it one of the charming spots near that flourishing city. Mrs. Buckley, his second wife, will probably still reside here.

MR. J. C. LEMMON.—This distinguished collector, with his wife, was to start again about first of April for an exploration, during the coming summer in Arizona.

A COMPLIMENT TO ISIDORE BUSH & SONS.—We note by the Italian journals that the grape catalogue of this firm has been translated into the Italian language, showing alike the appreciation of that far-away people of this very able work, and their great interest in the subject of American grapes.

TRANSACTIONS OF THE WORCESTER COUNTY (MASS.) HORTICULTURAL SOCIETY FOR 1884.—From Ed. W. Lincoln, Secretary, Worcester, Mass.

It is always a pleasure to receive this annual volume. The secretary's report especially being replete with valuable suggestions. Noting the meeting of the Pennsylvania Horticultural Society last fall, mention is made of the gorgeous designs

by the Philadelphia florists. The secretary, was much struck by the floral pulpit, floral desk, and Bible of cut flowers which laid open before the preacher, if he had been present; and he is filled with amazement that the florist forgot to make a floral minister reading from the holy book. Some capital hits are given at the extravagant laudations of new things by the introducers, especial note being taken of a statement that a variety of pear "sold readily in Massachusetts, as well as in Philadelphia, for $6 per bushel." Mr. Lincoln evidently believes that those who may have been so "readily" induced to part with $6 for a bushel of pears, will not readily do that same next time. It is a surprise to learn that the hall of the Worcester Society is taxed $877.20 a year, while that of the Agricultural Society is free from taxation, the assessors deciding that such a society is not a literary, benevolent, charitable, scientific or agricultural society, nor is it a house of worship; all these being exempt by law.

It has always been a mystery to us why any property which has to have fire, police, and general municipal protection, should be exempt from taxation; except, of course, such as belong to the municipal corporation. Voluntary charity is very commendable, but to force others to help you in your voluntary work, is an absurdity unworthy of an intelligent people. The people who advocate the public support of devotional and charitable institutions by relief from taxation, make nothing by it. The tax rate of Philadelphia and New York would be perhaps one-fourth lower, only for the enormous amount of exempt property. Therefore, even those who want to give, and to force those who do not give, pay one-fourth more taxes than they would do only for this exemption idea.

LES CLEMATITES A GRANDES FLEURS.—By Alphonse Lavallée, Paris, published by J. B. Bailliere et Fils, 1884.

This beautiful work is issued to give a full account, with illustrations, of all the more beautiful species of Clematis which adorn our gardens. In it we find excellent pictures of twenty-two so-called species, with which horticulturists are more or less familiar. Of American kinds, we have C. crispa, C. Pitcheri, C. reticulata, C. Viorna, C. Sargenti, and C. Texensis, the fifth named being a new one of his own description, given here for the first time, and named in honor of Professor Sargent. It seems allied to C. reticulata. It is, however, no easy task to decide what is a species, or what is but a mere sport or variation. We do not think botanists in the old world have advanced nearly as fast in the knowledge of variation in nature as have the botanists of America. In the preface to this work, Mr. Lavallée seems surprised that, if Clematis Jackmanii be a hybrid, as is generally believed, it should have the "rare merit" of reproducing itself from seeds, and in this way acquire all the properties of a species, and be able to constitute a new race; and simply from this consideration, he is inclined to regard it as a distinct Japan species, venturing to name it over again as Clematis Hako-nensis. But, surely, the fertility of hybrids is no longer a question of rare merit, nor is there any longer a doubt about the hereditary powers, as well as the fertility, of these peculiar creations. Then, again, the natural variations among Clematises are known to those who raise them freely from seeds, as very wide—especially when the seeds come from some particular locality. On the writer's grounds, there are a few hundred plants of Clematis Pitcheri, from a correspondent in Texas, most likely from a single, wild plant, or from plants growing within a few feet of each other, and one may make half a dozen species, if so disposed, quite as good in character as are given in botanical works. In fact, what is, or what is not a species, has come to be nothing more nor less than a matter of experience. Some things are found to vary easily, there the specific characters must be drawn so as to cover all these variations. Those which do not vary so easily, may have the line more closely drawn.

So far as horticulturists are concerned, these questions are of little moment. Though they be but variations, they are distinct enough to have names, and whether Clematis Sargenti, C. coccinea, C. Pitcheri, or others, be regarded as varieties or species, the names will be convenient as representing things of distinct horticultural value. It will be a welcome addition to the libraries of those who love beautiful things.

HORSES: THEIR FEED AND THEIR FEET.—By Dr. C. E. Page, New York. Fowler & Wells.

This is a treatise, of 150 octavo pages, and, in spite of its alliterative title, more suggestive of a sensational heading in a daily paper than of a solidly-written book, seems to be a very good essay on the general treatment of the horse. It does not pretend to be an exhaustive treatise, but is rather an essay on certain features of horse management, and fully as much as one would expect to get in an essay at a low price. It is good as far as it goes, and valuable to horse lovers.

SCRAPS AND QUERIES.

TO INTELLIGENT CORRESPONDENTS.—*All communications relating to advertisements, subscriptions, or other business, must be addressed to the publisher, 814 Chestnut Street, Philadelphia.*

All referring to the reading matter of the magazine must be mailed to the editor, Germantown, Pa.

No express packages for the editor received unless prepaid; and marked "Paid through to Germantown, Pa."

MICHAUX GARDEN AT CHARLESTON.—A correspondent writes: "Ramsey's history of South Carolina tell us that Michaux's garden was situated about ten miles from Charleston, but whether on the Ashley or Cooper rivers it does not say. Ramsey says: About the year 1786, the government of France sent out the celebrated André Michaux, who established a botanic garden, into which he introduced a number of curious exotics, etc. This garden has gone to ruin, though many of the articles growing there have been transplanted and preserved elsewhere. After publishing a botanical work in America, Michaux returned to France, where he published another book. He died in Madagascar in 1802. In examining Ramsey's history, we found quite an interesting account of the establishing of the now famous 'Drayton's Azalea and Japonica gardens,' which, if you care to have, I shall be happy to transcribe for you. The present owner is the Rev. Mr. Drayton. We generally drive over there every spring, and take our lunch to a most beautiful live oak avenue, where we and our horses rest, enjoying a delightful day there."

CRITICISING THE EDITOR.—"While sending you the enclosed communication," says "L. G.," "I feel like criticising the editor in his view that tree trunks do not elongate, but I know the rule in editorial work that correspondents may be allowed to criticise one another, but that the editor's decision must not be questioned." Our correspondent is mistaken in regard to the editor of the GARDENERS' MONTHLY. We have no such editorial pride of infallibility. The editor is just as likely to get wrong as a correspondent, and well-intentioned criticism is welcomed rather than repressed.

RELIABLE SEEDS.—Marcus says: "As you are a botanist, will you please tell me the class and order to which Reliable Seeds belong? I saw the advertisement of a dealer in Reliable Seeds, in an agricultural paper, and sent for a few packages, but after waiting a whole season none came up. I should be glad if you can help me?"

[We sent a copy of this inquiry by mail to "Honest John," but have had no reply yet.—Ed. G. M.]

DELAYED COMMUNICATIONS.—"F." The reason your communication did not appear sooner was, what often happens to others besides yours, and the explanation may do for all. The paper had a great deal of good, practical common sense, for which we valued it; but capitals were used where they should not be, and were not where they ought to be. It was not punctuated at all, and there were some grammatical slips which needed correction. All we can do in such cases is to lay the paper aside until we can get time to re-write it, and this may be a week or two, or even a month or more.

ILLEGAL PLANTS' NAMES.—A San Jose, California, correspondent, says: "A man here gets fruits and vines, etc., from France, and also from the States, and then changes their name in adding his to the known name. Is there not a State that has a law prohibiting such acts, and, if so, which? Or, perhaps, could you let me have it?"

[It is difficult to decide this question. There was a man once arrested and imprisoned in Philadelphia for selling common rhubarb plants under the name of "wine" plants, and pretending that the "wine" plant was something wholly new. Hence he obtained a dollar for a root of the "wine plant," when he could only have got twenty-five cents for it if he had called it rhubarb, or even "pie plant." The conviction was not so much for the new name, as for the name with intent to defraud. Now, if anyone should take common Bartlett pears, and call them Smith's Bartlett, and it could be proved that he intended to make the purchaser believe it was a different variety from the common one, no doubt a conviction for an attempt to get money under false pretenses could be easily obtained. But if he put in as his defence that the pears were of his growth, or were grown for him, and that by Smith's Bartlett pears he only intended to claim a superior growth or character of tree, we do not know why it should not pass as legally as "Smith's Family Flour," "Jones' Family Flour," or any other trade mark. We take it, an intention to deceive must be shown to make the act illegal.—Ed. G. M.]

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

MASSACHUSETTS HORTICULTURAL SOCIETY.

BY W. A. MANDA.

The azalea and rose exhibition held at the Boston Horticultural Hall, March 20 and 21, was a great success, not only showing the advancement of horticulture, but also that the taste for flowers and plants is becoming popular among the general public; evinced by the fact that between five and six thousand persons visited the hall, a number never attained before at a similar show. The plants and cut flowers were arranged in such way that everything could be seen to its best advantage. Along the sides were many fine and well-bloomed specimens of azaleas, rhododendrons, ericas, lilies, roses, cinerarias, cyclamens, hardy primroses, and a profusion of hyacinths, tulips, and lilies of the valley; a fine lot of cut flowers of camellias, roses and pansies. On the center stage was a fine display of cut flowers in variety, also two nicely arranged baskets. The center of the hall was devoted to orchids and aroids, and every one, connoisseur or not, was admiring the brilliancy of their flowers. There was a large number of plants, also cut blooms. Among them we may notice fine varieties of Odontoglossum Alexandræ, O. Pescatorei, O. triumphans, O. nævium majus, and O. Rœzlii; Dendrobium Jenkinsii, nobile, Wardianum and macrophyllum; Cattleya citrina, and many fine cut blooms of C. Trianæ, Cypripedium Boxallii, C. insigne Maulei, C. Dominii, and fine specimens of C. Dayanum and C. villosum, Masdevallia Veitchii, Harryana, and Shuttleworthii. A fine pan of Cœlogyne cristata, cut flowers of Phalænopis amabilis, P. Schilleriana, P. grandiflora. Among the new and rare things, I noticed Phajus tuberculosus, Odontoglossum Alexandræ, var. flaviolum; Phalænopis amabilis, var. grandiflora; two fine varieties of P. Stuartiana, Lælia anceps, var. Veitchii, and the little gem Restrepia elegans. The Anthuriums were represented with many spathes of A. Scherzerianum, A. Andreanum, and the two new hybrids, A. Ferriense and A. Rothschildianum. A collection of over a hundred species and varieties of narcissus occupied a table with a few Anemone fulgens, and other bulbous and alpine plants, which produced a charming effect, and did not fail to attract the attention of the numerous visitors.

Botanic Gardens, Cambridge, Mass., April 4, 1884.

EDITORIAL NOTES.

PENNSYLVANIA HORTICULTURAL SOCIETY.—The Pennsylvania Horticultural Society have had no monthly meetings for some years, but made an essay in the first week of April to try one, to see what support a resumption might receive from horticulturists. Only two amateurs, we believe, responded, but quite a number of florists sent good contributions. No premiums were offered. The result of the experiment seemed to be that, if the amateur and commercial gardeners would take hold of the matter judiciously, the monthly meetings might be successful, if not, indeed, more than excel their old-time renown.

Among the amateur collections, Mr. A. J. Drexel sent a collection of varieties of Coleus. It was evident from the great variety and beauty of many of these kinds, that those who only see the Coleus in beds in the summer time, have no idea of what a charm there is in them when pot-grown. Only a few are well calculated to come out well in the open sun, or to match well with other plants in mosaic bedding, and, indeed, it is common to hear the remark that the old Verschafeltii is yet as good as any. But good as any it certainly is not, when such a collection as this of Mr. Drexel is brought together. It is difficult to conceive of anything that will give more pleasure in the way of leaf plants.

The other gentleman, Mr. Wistar Morris, had a very neat collection of flowering plants. There were not many large plants among them, but the variety was very choice. The curious Bougainvillea, in which the large pink bracts do duty for flowers, attracted quite a large circle of admirers. In this collection we noted some seedling petunias, very double, of parti-colors, and fringed on the edges of the petals. It may be that we have overlooked these points before, but they struck us as forming a novel, and certainly a very pretty feature in the usually rather coarse but showy petunia. Mr. Vallandigham, the gardener to Mr. Morris.

deserves praise for his pretty collection of flowering plants. Mr. Dreer also had some pretty coleus, but the most attractive plant in his collection was a plant of the balsam or lady slipper family, called Impatiens Sultani. Those familiar only with the lady slipper of the flower garden, would hardly recognize this rather shrubby though succulent perennial greenhouse plant. The scarlet flowers look rather like pansies than the ordinary balsam.

Greenhouse azaleas were in great numbers, and very good, though nothing remarkable in novel varieties or novel culture, specially attracted attention. Among the azaleas of Fergusson & Sons, were some forced rhododendrons, at the beauty of which the azaleas were evidently quite jealous. One of these, named Comte de Rohan, was not familiar, and whoever once sees it will not forget it. It was blush-white, fringed on the edges, with the upper petal centered by a pretty crimson feather.

Robert Scott made a fine exhibit of Lilium Harrisii, in six-inch pots. The plants were about two feet high, and had a crown of about six flowers on each stem.

The cut flowers were not numerous, as at this Easter time, when the whole fortune of a florist for the year often depends on the fabulous prices he can get to cover the other fifty-one weeks of loss, few could be expected on a free exhibition; but Kift & Sons had a few to show off a dinner-table fountain, made to eject water by electric power, the waste water being used over and over again. It is an extremely interesting novelty.

The chief interest centered in the roses. There were quite a number in pots from J. H. Campbell, plants in five or six-inch pots, about two to three feet high, and with six to twelve flowers on each plant. They were what would be called very well grown market plants. Cut blossoms of the new Southern Belle were exhibited by J. N. May, of Summit, New Jersey, and we think may, without extravagance, be styled superb. Only for their delicate pink shade, they might be compared in size and form to moderate-sized lemons. Then there was W. H. Hanson, with his magnificent collection of cut roses. There were about half a dozen flowers of each kind in one hyacinth glass, and about half a dozen glasses of each kind. Then there were about a dozen kinds altogether, so that the whole made a grand exhibit. Among them all, Niphetos seemed still to hold the sceptre. Have you seen Hanson's Niphetos? was the general query. The buds were about three inches long, and every petal as regular as if carved. Another old veteran in grand condition was Bon Silene, and with such large and highly colored flowers as these were, it is doubtful whether anything more than novelty can be offered by competing varieties. For those who delight in broad, cup-like flowers, there were in this collection fine Catharine Mermets. They were about four inches across, yet still double and perfect.

Craig & Bro. had magnificent blooms of Bon Silene also, as well as Baroness Rothschild, and if those who ask: What has become of the Duke of Connaught? could have seen the large, highly colored flowers here presented, they would soon be ready to ask, What has become of General Jacqueminot?

WORLD'S FAIR AT NEW ORLEANS NEXT DECEMBER.—In the programme of classification, we find the following items of horticultural interest. Those who desire further details can correspond with Parker Earle, Cobden, Illinois:

GROUP SECOND—HORTICULTURAL.

Class 201—Ornamental Trees, Shrubs and Flowers.—Ornamental trees and shrubs; evergreens; herbaceous perennial plants; bulbous and tuberous-rooted plants; decorative and ornamental foliage plants, annuals and other soft-wooded plants, to be exhibited in successive periods during the season; roses; cactaceæ; ferns—their management in the open air, ferneries, new plants, with statement of their origin.

Class 202—Conservatories and Their Management.—Large conservatories and apparatus pertaining thereto; room and window conservatories; aquariums for aquatic plants; fountains; hot-house and conservatory plants; orchids and parasitic plants; aquatic plants.

Class 203—Implements and Accessories.—Gardeners', nurserymen's and horticulturists' tools and implements of all descriptions; apparatus for watering and keeping turf in order, etc.; ornamental wire-work for gardens; ornamental receptacles for plants; aquariums and flower stands.

Class 204—Garden Designing and Construction.—Designs for the laying out and construction of gardens; the treatment of water for ornamental purposes, reservoirs, lakes, fountains, cascades; formation and permanent treatment of lawns, general construction, rock-work, grottoes; rustic constructions and adornments for gardens.

Class 205—Gardens for Dwellings.—Species of plants and examples of culture exhibiting the characteristic types of the gardens and dwellings of each country.

Class 206—Vegetables.—Species of plants and examples of culture exhibiting the characteristic types of the kitchen gardens of each country.

Class 207—Fruit and Fruit Trees.—Species of plants and specimens of products exhibiting the characteristic types of the orchards of each country.

Class 208—Seeds and Saplings of Forest Trees.—Species of plants and specimens of products, illustrating the processes followed in each country for planting forests.

THE MASSACHUSETTS HORTICULTURAL SOCIETY.—The March exhibition, judging by a Boston paper, was a great success. Messrs. Woolson, of Passaic, N. J., had 110 varieties of daffodils; one of them, the John Nelson, is described as having a beautiful, white, trumpet-shaped centre, more than two inches in length. Anthurium Rothschildiana, from F. L. Ames, is described as an arum-like plant, with the spadix lemon-dyed, but the spathe white, with spots of red.

The azalea display of the venerable grower,

who won the first prize, Marshall P. Wilder, included twenty-six varieties, the most striking of which were the Marquis of Lorne, which was showy in its bright red raiment, and the Countess of Bedford, a new variety, with light pink corolla and dark blotches.

A pleasing innovation was forced rhododendrons, from the President, F. B. Hayes. A dracæna, called Lindena, having yellow leaves, mottled with green, from Hovey & Co., attracted attention.

No less than thirty varieties of camellias were exhibited by the President, Mr. Hayes, of which, A. J. Downing, Abby Wilder, and President Clark were conspicuous. A large plant of an azalea, named Susette Hovey, with light purple flowers, attracted much attention. A rare and novel sight was a collection of twenty-six varieties of hardy primroses, or polyanthus, by Jackson Dawson.

Winter pears, to which premiums were given, were Duchess of Bordeaux, and Easter Beurre, but we cannot learn whether these were in competition for the best pears of these kinds, or whether the offer was for the best pears of the season.

NEW ORLEANS EXHIBITION.—The premium list of the Department of Horticulture has just been issued. The most extensive arrangements have been made. Parker Earle, Cobden, Illinois; P. J. Berkmans, Augusta, Georgia, and C. W. Garfield, Grand Haven, Mich., are in charge of this department, and will be glad to give any information in regard to it. As all the world will be there, it will be to the interest of every leading horticulturist to take a part therein.

GERMANTOWN, PA., HORTICULTURAL SOCIETY.—At the April meeting, Mr. Edwin Lonsdale exhibited a number of single dahlias, which had been forced, and the large, velvety flowers were fully three inches across, and much superior to those seen last year in open air plants. They served for a leading text to Professor Thomas Meehan, who discourses monthly to large audiences on the botanical and horticultural features of whatever may be on exhibition, as Professor Henslow does at the Royal Horticultural Society in London. Mr. David Cliffe had plants of the beautiful Impatiens Sultani, which will be well suited to open air culture in America, and will probably bloom from spring until frost destroys the plants. The flowers are scarlet. Mr. Alex. Young, gardener to Mr. R. S. Mason, had a plant of Lycaste aromatica, with twenty-nine flowers expanded, the fragrance from which competed with a plant of Rhyncospermum jasminoides, in the effort to believe they were in the line of some odoriferous breeze from Araby the Blest. It is by no means a showy orchid, but one no lover of this beautiful family will care to be without. Mr. McCleary, gardener to Miss Dorsey, had the Rhyncospermum, which had the merit of being only a couple of feet or so high. It is the mistake of many plant growers to have this plant too large. The mistake of cultivators is to offer over-grown for well-grown specimens. An illustration of good culture here, was a specimen of Thomas Hogg hydrangea from Henry C. Haines. Though less than two feet over, the plant had about twenty-four heads on it, so of course each head was not very large, but the plant was beautiful by reason of the proportionate heads. Azaleas, pansies, English primroses, and other things, added to the interest of the exhibition, though no special features of novelty presented themselves.

SCRAPS AND QUERIES.

POT-GROWN CHRYSANTHEMUMS.—Mr. John Stewart, gardener to Mr. B. Bullock, Conshohocken, Pa., writes: "I again write a few lines in regard to the mis-statements made by Mr. Wooding, in January number, and endorsed by the editor in the same and subsequent issues. Mr. Wooding stated that Mr. Bullock's gardener 'seemed to have plants two or three years old taken up out of the open ground just previous to the show, and potted in twelve or fourteen-inch pots * * * No one will call lifting plants from open ground, skilful pot culture.' And the editor in the same issue makes the same mistake in the words: 'Some plants at the Pennsylvania show were five feet round, but not pot-grown.' Now, as a matter of fact, all the plants in both collections were pot-grown. These errors have never been rectified. One word, in conclusion, in regard to the possibility of growing better plants in the open ground, and then lifting. I venture the assertion that it cannot be done. To come nearest perfection, it is necessary that the chrysanthemum should be pot-grown from its infancy. It is not possible to have as fine flowers by growing in the open ground and lifting after the buds had set.

[Mr. Stewart seems not to have noticed that the mistake was corrected. He will find his own letter with the correction, at page 96, March number. —Ed. G. M.]

ROMAN HYACINTHS,
Paper White Narcissus,
Immortelles, &c.,
To the Trade Only.

L^S. BREMOND FILS,
OLLIOULES (VAR.) FRANCE
GROWER AND EXPORTER.
Apply for Catalogue and particulars to the General Agent for U. S. A.,
tmy2 **J. A. de VEER, 318 Broadway, New York.**

Art of Grafting and Budding

BY CHARLES BALTET,

Appropriately and fully illustrated by 186 cuts, showing methods, tools and appliances. Pp. 230, 12 mo. cloth, flexible. Price $1.25 mailed, postage free. Address,
CHAS. H. MAROT, 814 Chestnut Street Phila.

ASPARAGUS CULTURE.

The BEST METHODS EMPLOYED in ENGLAND and FRANCE.

BY JAMES BARNES AND WM. ROBINSON.

With translations of Mr. Lebœuf's Essay on Asparagus, and particulars of the seven years competition instituted for its improvement. Illustrated with wood cuts. New edition. 84 pages. 50 cents by mail on receipt of price. Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

CRANBERRY CULTURE.

BY JOSEPH J. WHITE

Embodying in plain and concise manner all the useful and practical facts which study and experience have yielded to the inquiring Cranberry grower of the present time. 126 pages, 12 mo, cloth. Illustrated. Price, post-paid $1.25. Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

FRUIT GROWER'S FRIEND.

AN EASY GUIDE FOR THE

Raising of Fruits for Pleasure or Profit

BY R. H. HAINES.

Paper, 34 pp., 8vo, price 30 cents; mailed post-paid on receipt of price. Address,
CHAS. H. MAROT,
814 CHESTNUT STREET, PHILA

ROSES IN POTS;

observations on their Cultivation including the Autobiography of Pot-Rose,

by WM. PAUL.

92 pages, cloth, illustrated. Price, $1 00

Sent Prepaid by mail on receipt of price.
CHAS. H. MAROT, 814 Chestnut Street, Phila.

A MANUAL OF VEGETABLE PLANTS,

BY ISAAC F. TILLINGHAST.

Containing the experiences of the author in starting all those kinds of vegetables which are most difficult for a novice to produce from seed; with the best methods known for combating and repelling noxious insects and preventing the diseases to which garden vegetables are subject. 108 pages, 16mo, cloth, price, $1.00, mailed, post-paid, on receipt of price. Address,
CHAS. H. MAROT, 814 Chestnut St., Phila.

The GARDENERS' MONTHLY
AND HORTICULTURIST
FOR 1883-4.

SUBSCRIBERS

are requested to send at least one NEW name with their own, if possible. For this attention, we will furnish THE TWO at $3.00 for the year.

TWO NEW SUBSCRIPTIONS at $3.00. FIVE at $7.00.

Remit by MONEY ORDER or REGISTERED LETTER; or if you send DRAFT or CHECK, make payable on MIDDLE STATES, NEW ENGLAND or MARYLAND. On BANKS west and south of those points add twenty-five cents to each CHECK, to refund cost charged us for collection. Currency is at risk of sender.

RESPONSIBLE AGENTS

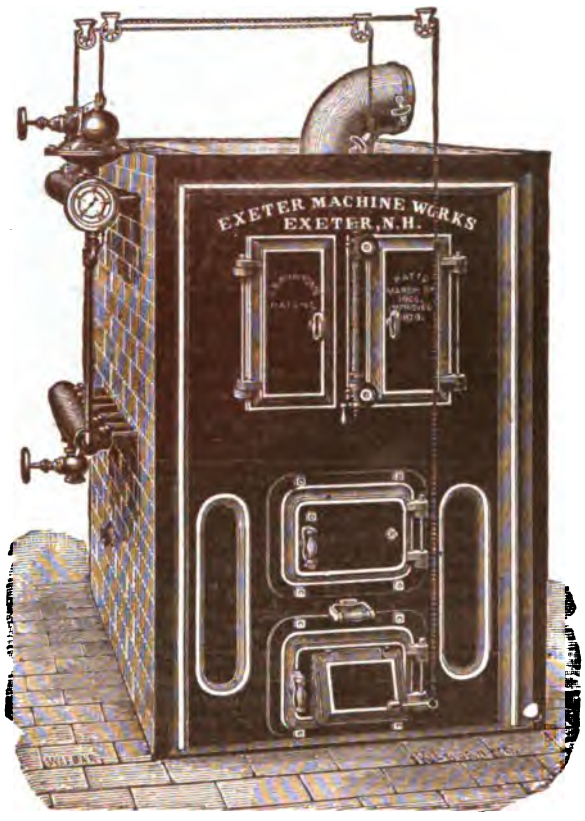
Will be allowed a liberal commission, retainable out of subscriptions secured and forwarded. Send for net rates. Sample copy 15 cts., postage stamps. We do not hold ourselves responsible for the acts of *Bogus Agents.*

SUBSCRIBERS MUST CHOOSE THEIR AGENTS AT THEIR OWN RISK.

Any Subscriber who has already renewed his subscription and paid $2.00 may order a new subscriber at the rate of $3.00 the two, by remitting the additional $1.00 to balance, and oblige, with thanks for past favors and efforts.

All subscribers, at whatever rate, are invited to take advantage of our list of CLUB PAPERS. See advertisement.

CHARLES H. MAROT, Publisher,
814 Chestnut Street, Philadelphia.



THE EXETER HEATING APPARATUS.

GREENHOUSE HEATING A SPECIALTY.

Our systems comprise Hot Water Heating, Steam Heating, and the combination of Steam and Water.

OVER 1000 BOILERS IN USE.

Exeter Machine Works

19 Federal St., Boston, and Exeter, N. H.

We solicit correspondence from any party contemplating a change in their apparatus. tfx

---

A NEW BOOK NOW READY.

THE ROSE

A treatise on the Cultivation, History, Family Characteristics, etc., of the various groups of Roses, with accurate descriptions of the varieties now generally grown.

BY H. B. ELLWANGER.

Pp. 293, 16mo, cloth. Mailed, post-paid, on receipt of price, $1.25. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

KNABE

PIANOFORTES.

UNEQUALLED IN

Tone, Touch, Workmanship and Durability.

WILLIAM KNABE & CO.

Nos. 204 and 206 West Baltimore Street, Baltimore. No. 112 Fifth Avenue, N. Y. apl

---

GREENHOUSES HEATED

BY LOW PRESSURE STEAM.

mh12 SATISFACTORY PERFORMANCE OF APPARATUS GUARANTEED. ADDRESS,

E. H. BOCHMAN, - - - - Box 373, Pittsburgh, Pa.

Kissena Nurseries.

Trees and Plants.

Parsons & Sons Co.,

LIMITED.

Flushing, N. Y.

ftf

Parks & Gardens of Paris

considered in relation to the wants of OTHER CITIES, and of PUBLIC and PRIVATE GROUNDS.

By WM. ROBINSON.

Splendidly and profusely illustrated. pp. 548. Octavo. Price $7.50. Mailed post-paid on receipt of price.

Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

The Botanist's Pocket Book.

2nd Edition, cloth limp, pp. 208. By W. B. Hayward. Containing the Botanical Name, Common Name, Soil and Situation, Growth and Time of Flowering of every Plant arranged under its own Order. Price $1.70. Mailed, postage free.

CHAS. H. MAROT, 814 Chestnut St., Phila.

JUN 2 1884

Harvard College Library

THE GARDENERS' MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

Vol. XXVI. No. 306.
(Combined Magazines, Thirty-ninth Year.)
JUNE, 1884.
PUBLISHED BY CHARLES H. MAROT,
814 Chestnut Street, Philadelphia.

[Entered at the Post Office, at Philadelphia, Pa., as second-class matter.]

THE GARDENERS' MONTHLY

AND HORTICULTURIST.

It is published on the first of every month at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS relating to subscription or advertising should be addressed.

☞ Communications, Copy and Packages for the Editor should be addressed to THOMAS MEEHAN, GERMANTOWN, PHILADELPHIA.

SUBSCRIPTION PRICE, POSTAGE PAID, $2.00.

ADVERTISING RATES IN THE GARDENERS' MONTHLY:

	¼ col. or 12 lines.	⅛ col. or 16 lines.	¼ col. or 24 lines.	⅓ col. or 32 lines.	½ col. or 48 lines.	1 col. or 96 lines.	1 page, or 192 lines.
One Insertion	$3.00	$4.00	$5.50	$7.00	$10.00	$18.00	$35.00
Two times, each	2.90	3.90	5.00	6.80	9.00	17.00	33.00
Three " "	2.80	3.75	4.75	6.55	8.50	15.50	30.00
Four " "	2.70	3.60	4.50	6.30	8.10	14.40	27.00
Five " "	2.55	3.40	4.25	5.95	7.65	13.60	25.50
Six " "	2.35	3.15	3.93	5.50	7.05	12.45	23.50
Seven " "	2.20	2.95	3.65	5.15	6.60	11.75	22.00
Eight " "	2.05	2.75	3.45	4.80	6.15	10.95	20.50
Nine " "	1.90	2.45	3.20	4.45	5.70	10.15	18.85
Ten " "	1.75	2.30	2.85	4.05	5.25	9.30	17.45
Eleven " "	1.60	2.15	2.65	3.75	4.80	8.55	16.15
Twelve " "	1.50	2.00	2.50	3.50	4.50	8.00	15.00

Twelve lines nonpareil is ¼ col. A less space than ¼ col. will be furnished at same rate per line as ¼ col.
For space on FLY-LEAF and LAST COVER PAGE, also FIRST PAGE advertisements facing last reading page, 20 per cent. advance on above rates will be charged.

CHAS. H. MAROT, Publisher, 814 Chestnut St., Philadelphia.

CONTENTS OF THE JUNE NUMBER.

SEASONABLE HINTS:

Flower Garden and Pleasure Ground..... 161-162
Fruit and Vegetable Gardening..... 177-178

COMMUNICATIONS:

Wire and Hedge..... 162
Roses and Climbers..... 163
Notes on Mistletoes..... 164
On the Care and Culture of Roses..... 165
New and Beautiful Crotons..... 170
Ferns..... 172
Rose, André Schwartz..... 173
Orchids in Flower at the Botanic Gardens, Cambridge, Mass..... 174
A few words about Tea..... 178
Grafted Grape-Vines..... 179
Timber on the Prairies..... 182
Hickories, Chestnuts and Maderia Nuts..... 182
The Spanish Chestnut..... 183
Botanical Notes from Chew's Landing, N. J..... 184
Habits of Birds..... 185
New Species in Caryophyllaceæ Tribe..... 185
Floral Monstrosities..... 185
Recollections of Other Days..... 187
A Visit to the Greenhouses of Chas. F. Evans..... 189

EDITORIAL NOTES:

Pansies—Texan Blue Grass—Hazeltine's Hand Weeder—The Orchids of New England—Hardy Evergreens—Forsythia suspensa—Roses in Havana..... 167-169

Lælia anceps—Azalea, Miss Buist—Cure for Mealy Bug—Steam Heating—Forcing Lilacs..... 175

The "Cottony Cushion" Scale—The Peach Worm—Plum Culture—Soil for Raspberries—Paris Green for the Codling Moth—Culture of the Dandelion—Gathering Raspberries for Market.. 179-180

The English Oak as an American Timber Tree—Sugar from the Yellow-wood—The Nut Pine of the Rocky Mountains and California—Fate of a Famous Honey Locust Tree—Walnuts in California..... 182-184

Rosa polyantha—The New South American Potatoes—Bees and Clover..... 186

Jerusalem Artichoke—Happy as an Owl in an Ivy Bush—The Poet and the Birch Tree—The Virgin's Mantle—Baron Ferdinand Von Mueller—Nurseries of John Reading, at Salt Lake City—Old-time Gardeners—Jean Verschaffelt—Mons. Alphonse Lavallee—Report of the Secretary of the Michigan State Horticultural Society—Yellowstone National Park—Drugs and Medicines of North America—Forestry Bulletin..... 189-191

World's Exposition at New Orleans—Reports of Horticultural Societies—Pennsylvania Horticultural Society..... 192

NEW OR RARE PLANTS:

Osmunda Japonica corymbifera—Picea ajanensis—Magnolia Thurberi—Rose, Secretary Nicholas Impatiens Sultani..... 169, 175-176

SCRAPS AND QUERIES:

Stable Manure—Coal Tar—Potash for Peaches with Yellows—The Brightwater Apple—Forced Strawberries—Hardiness of the Spanish Chestnut Michaux—A Twin Fuchsia—Absence of Timber on the Prairies..... 181, 186-187

Popular Names—Cypripedium for Name—Pruning and Management of Trees—The Burdock... 191-192

FLOWER GARDEN & PLEASURE GROUND. 161-169
GREENHOUSE AND HOUSE GARDENING..... 170-176
FRUIT AND VEGETABLE GARDENING..... 177-181
FORESTRY..... 182-184
NATURAL HISTORY AND SCIENCE..... 184-187
LITERATURE, TRAVELS & PERSONAL NOTES 187-192
HORTICULTURAL SOCIETIES..... 192

JUN 2 1884

THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

VOLUME XXVI. JUNE, 1884. NUMBER 306.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Hybrid perpetual roses are classed among the ever-blooming ones, but whether they bloom freely in autumn or not, depends much on treatment. The flowers at this season should be cut off at once as they fade. It is from the new buds which push from under the old flowers that comes the autumn blooms. All roses bloom the better in their succession for having their flowers cut as they fade.

So many roses have been sent out on the Manetti stock, that great care will be needed to watch for and take off the suckers as they appear, or in a year or two they will kill the grafted part; one can soon educate the eye to distinguish between a Manetti and the kind grafted on it.

A very interesting occupation is the raising of roses from seed. General Jacqueminot seeds freely, and makes a good parent. A few blooms may be left to mature on this variety.

Towards the end of June propagation by budding commences. This is very commonly employed with the rose; but ornamental trees and shrubs may be increased in the same way. Closely allied species must be chosen to work together.

Propagation by layering may be performed any time when strong, vigorous growing shoots can be had. Any plant can be propagated by layers. Many can be readily propagated no other way. Cut a notch on the upper side of the shoot, not below, as all the books recommend, and bend down into, and cover with rich soil. In a few weeks they root, and can be removed from their parents. Stakes for plants should be charred at the ends before using, when they will last for years.

The rose bugs are apt to be very annoying at some seasons. The best remedy is to shake them off into a pail of water. The rose slug is often very injurious to the leaves—completely skeletonizing them. All kinds of rapid remedies have been proposed—whale oil, soap, petroleum, &c., but the best thing of all is to set a boy to crush them by finger and thumb. It is astonishing how rapidly they are destroyed by this process. This is true of most of the larger insects. Hand picking or crushing is by far the best remedy.

Peg down roses where a heavy mass of flowers is desired. The side shoots push more freely for this treatment. Roses may be propagated by layering as well as other plants.

Flower-beds should be hoed and raked as soon as the ground dries after a rain. Loose surface soil prevents the under stratum drying out. Peg down bedding-plants where practic-

able. Split twigs make the best pegs. In dry weather do not water flower-beds often; but do it thoroughly when it is done. See that the water does not run off, but into and through the soil.

Grass lawns require mowing often; but not cut down close to the ground. It is best to rake off the mowings. We have only learnt this of late years. Where it is necessary to trim ornamental deciduous hedges, it is best done twice a year. Square-topped hedges are not desirable. The conic form gives the best hedge. Trim before the young growth gets hard, and again after the second growth.

Evergreen trees love pruning as well as deciduous. The Scotch pine and the Chinese Arbor-vitæ, are two plants which derive wonderful benefit from the pruning knife. Both these are very liable to get ragged when left entirely to their natural inclinations, but grow with a beautiful compact luxuriance under the occasional application of the knife. Indeed the Scotch pine with judicious pruning makes one of the most beautiful ornaments of the lawn and pleasure ground. It can be made to take many odd forms; one of the most picturesque is obtained by cutting off its head when about ten feet high, and never let another leader grow. The side branches are all cut away except the upper tier, these spread then outwardly —not exactly creeping but flowing forward in the most luxurious green imaginable, making a much prettier arbor than any weeping tree we ever saw.

These peculiar objects are very striking in a flower garden, and other things besides evergreens will furnish them. Deciduous shrubs may often be trained into interesting forms. The Wistaria sinensis, for instance, makes a very interesting object trained as a small tree. If tied up to a stake for one or two years, and then suffered to stand alone, it will make a pretty round head, and when in spring the pendant blossoms are in profusion, it makes a unique ornament on a lawn.

Increased attention has been given the Rhododendron and Azalea the few past seasons, as they prove to be much more easy to manage than people formerly thought. It is found to be a mistake that they need shade. It is only a cool soil they require. This is made by deepening it, and adding to it material, which will keep it open and porous at all seasons. We accomplish this by adding fine brushwood with the heavy clay loam. Those who have them in good growing order should take care to keep them in good health by occasional top-dressing. This they enjoy, as the little hair like-roots fancy feeding in cool places, near the surface. It has been found in the vicinity of Philadelphia that well-decayed cow manure is used to very great advantage as a dressing for these plants.

COMMUNICATIONS.

WIRE AND HEDGE.

BY J. A. M'KEE & SON.

It has been alarming and amusing to watch your progress towards putting together an idea that originated with the junior member of our firm, J. B. McKee, during the summer of 1881, and for which we ordered Munn & Co. to apply for a patent for us, as a part of the correspondence enclosed with this will show. But, it not being mechanical, they, in their greater wisdom, could see nothing in it, and honestly advised us to keep our money, and not make the application.

The idea originated in a felt want, and was suggested by trying with barbed wire first, then with hedge, to erect a barrier against marauders along an exposed line of our fruit farm at Cynthiana.

Wire or hedge alone seemed inadequate, when it suggested itself to unite the two. This appeared to his imagination the most beautiful, the most impenetrable and the cheapest barrier ever reared to protect private property. I copy the following description from some old notes made at the time of making the application, June 21, 1882; and now give our pet invention to the American people.

Thoroughly prepare the ground as for a hedge fence, then erect a wire fence on posts, either permanent or temporary, along the line, using wire smooth or barbed, fine or heavy, many or few strands, as exigencies may require. Then plant a line of hedge plants immediately below the line of wire, and as the plants grow, weave them in with the wire with a wooden fork and hook, held in the hand, spreading and interlocking, and trimming as is found necessary, until the desired object is attained, when the posts may be removed, and the screen, fence, or barrier, kept trimmed as taste or necessity may dictate. The ground should be prepared first; posts set next; then set hedge plants; then put on the wires. As the plants grow during summer, pull and push the tops through like basket-work, using for the purpose a little home-made tool with hook and fork.

The wires make a practical fence at once, and at the same time protect the line of hedge plants while growing, enable the operator to spread and

flatten the plants, fill up missing spaces, keep the plants in an erect position, bind the whole thing together. In a few years they are so interwoven, supported, and held in place by the living plants, that no man will ever know when they ceased to do duty. Posts may be removed after a few years, or may be made of wood that will soon decay and get out of the way; as after four years of good growth they will be entirely unnecessary. The hedge plants must be trimmed and kept in order just as an ordinary hedge fence.

Thus may be erected of the most delicate plants, and finest wire, an ornamental screen to protect the flower-bed from the children, chickens, and rabbits through the farm fence; protection and screens for the fruit garden, orchard, ornamental pleasure ground, corral for wild cattle, or prison wall. In the various gradations, different and widely varied plants and material may be used. Small, beautiful evergreens may be made to conceal the terrible barb, that will command respect from man or beast; or the gnarled, thorny Osage may be run up to such a height, and made of such strength and thickness as to command respect from the most relentless robber. It may be made so strong as to require the united effort of a worker in wood and iron to get through, or special appliances to get over it, and if inlaid with a shotgun, neither will be tried, except in rare cases. And now, in giving this perfection of fence to the world, but particularly to the horticultural brotherhood, we sincerely desire the press to copy it, or give such notice of it that it will be forever impossible for it or any part of it to be hedged round with a patent by anybody. Let it be free to all to use in all or any of its various forms for all time, is the sincere wish of the inventor.

Dr. Warder would have put this together thirty years ago, when he constructed the Osage hedge around Spring Grove cemetery, using two slats nailed on posts to hold straggling limbs in place and to flatten the plants and mould them into symmetrical shape, if he had had the use of the modern barbed wire. His plan of constructing hedge is described in "Hedges and Evergreens," and was seen in process of construction many times by the senior member of our firm when a boy at school. *Cynthiana, Ky., Feb. 6, 1884.*

[A very interesting chapter, and yet we do not think the plan proposed by Mr. McKee as good as the one recommended by the GARDENERS' MONTHLY. The cheap and temporary posts, made a secondary consideration, we should make the first; and they should be very light, mere stakes. We should not take the trouble to weave the branches in among the wires; there will be enough side branches grow through to support the wires. Nor, for a plan of this kind, is it essential to get expensive barb wire, although that, of course, would make the plan more perfect. An Osage orange hedge is very nearly protective in most cases. A few strands of any kind of wire, extending laterally through it, especially at the bottom, is enough to perfect it.—Ed. G. M.]

ROSES AND CLIMBERS.

BY MR. GEO. BOCK.

Seeing the request of Mrs. M., on page 43, February number, I give some points on roses; as I made them my hobby for many years. I have experimented, and noted down all I found worthy, being, moreover, under no obligations to florists. I can recommend as the best book I have "The Rose, by H. B. Ellwanger," on account of its catalogue of varieties. My best roses are first fifteen, as asked: Alfred Colomb, Annie Wood, Baroness Rothschild, Boieldieu, Charles Lefebre, Fisher Holmes, Crested Moss, Common Moss, Prolific Moss, Francois Michelon, General Jacqueminot, John Hopper, Madam Charles Wood, Madame Boll, Madame Zœtman, Marie Bauman, Marguerite de St. Amande, Pierre Noting, Paul Neyron, Maurice Bernardin, Xavier Olibo. Of climbers, I advise to keep away from at present, except a few prairies, like Baltimore Belle, Half Climbing, Princess Adelaide Moss, and Reine Marie Henriette if covered. I find the Clematis family by far the finest blooming climbers, and hardy, which none of the roses mentioned are, sufficiently to withstand 22° below freezing this year, except the Moss, Madam Zœtman, and B. Belle. All others are Remontant, or Hybrid Perpetual, and killed now to the ground or snow line. But as they are to be pruned, it matters little; entirely different from climbers, which should not be cut much. If you try the Lanuginosa section of clematis, say Candida, you will not plant many climbers besides. Flamula will do, with Candida, for trial. Roses must be planted together in rich, clayish, well manured soil, dug at least two spades deep. I plant about two feet apart, have a splendid oval bed, shaded north and west, open east and partly south. I find it best to get own root plants, two years old, from open ground. Get the best plants. True to name is a very strong point; and care should be taken to know what one is to get before ordering. *Hamilton, Ohio.*

NOTES ON MISTLETOES.

BY JOHN THORPE.

I cannot let the opportunity pass without sending you the following notes on mistletoes. I am prompted to do so on reading an extract from your reference to Phorasendron at a recent meeting of the Academy of Sciences, Philadelphia.

You will find my notes extended in various directions, and did not always bear fruit. It is a good many years since I was apprenticed to an uncle in one of the midland counties of England, said uncle being a strict disciplinarian, often not very communicative, but generally willing to impart information, if asked—provided he was not asked the same question twice. This brings me to the mistletoe. On the corner of a vine border, there grew a remarkably vigorous Keswick Codling apple tree. At the time I refer to, the tree was about sixteen years old, on which there was a bunch of mistletoe growing, said bunch being from two to three feet in diameter, nearly spherical. Just such a one as would have made the perfection of a kissing bush; such a bush I have never seen since. The whole stems were of the richest green, not of that sickly yellow hue so often seen in ordinary mistletoe. The leaflets (keys, we boys used to call them) were large and fat; the berries were not in great numbers, but of the size and translucency of the largest white Dutch currants. The value of this bush was beyond price to us boys—there were three or four of us—so far as this, if we ever touched that mistletoe to break a limb, or steal a berry, our slate would be full, and we would have to leave. With longing eyes, about Christmas, we often gazed on the mistletoe so oddly beautiful. I must also tell you about the apples. The tree was particularly vigorous, and fruited every year. The good living in the vine border and close proximity to a sewer drain, afforded the apple tree all the luxuries of life; and so far as the mistletoe affecting the vitality of the tree, there was not any sign of its so doing. Well, the apples this tree bore were marvellous for size and finish; such apples I have never seen; as large as good Lord Suffields, with a sulphury yellow skin. On the exposed sides were clouds of bronzy salmon and gold, the flesh as white as snow, and even sweet; yes, sweeter than Keswick Codlings were known to be, so it seemed to us, as sometimes in the very early morning, when we found a fruit or two on the ground. But to the mistletoe. Some time after Christmas, when the poetry of the plant had had a more than usually happy innings in the season's festivities, I ventured to ask my uncle some particulars about it and how to propagage it. I was told the plant, botanically, was Viscum album, a parasite—and could be propagated by grafting the berry in the bark, but was referred to Don for further information, except that some day I should be shown how to graft it. I well remember it was a long wait, but dare not mention how impatient I was. At last, one dinner-time, late in February, I saw my uncle looking round the mistletoe bush picking off here and there a berry. Commanding me to get a piece of netting, such as was used to make women's caps of that period, and a few strong pieces of matting (bass), which I did with great pleasure, following anxiously after my uncle until he came to an apple tree. The variety of apple, I can distinctly remember, was "Irish Peach," where he at once made a V shaped incision, with the upper end of the Λ at the bottom, lifting up the bark and placing in each lower corner a berry of the mistletoe, pressing down the bark, tying over the net to keep the birds from picking out the seed, and slightly binding with the matting to keep the net in place. This was repeated several times, I noticing that each position was the same, viz., on the north side of the tree, being told the sun would not dry out the seed, and that the germ lived on the viscid pulp around the seed until it had taken. How impatiently I watched for the signs of growth, which did not occur until quite late in April, and then but slow was the progress. The most growth made by any of these during that summer was not more than can be seen in a good sized pea just before it makes its appearance out of ground, or after being sown say forty-eight hours. There were two almost perfect cotyledons, and a sucker formed radicle of about the same length. But the next year's growth showed quite a difference, commencing, as it did, towards November and growing steadily until May, or perhaps later. My curiosity prompted me to make many experiments, as I was told it would grow only on apples, pears, thorns and poplars, with a few very rare instances of its being found on the oak. So I determined not to stop at such a limited field, and successively cut V shaped notches in hornbeam a good many, hazel, plums, elms, spruce, arbor vitæ and mountain ash, going so far as tying up seeds in branches of apples, covering with moss, and hanging on the north side of the pump, a really sturdy, old-fashioned wooden pump, not a slim 6x4 modern innovation. As a matter of course, I did not make all grow, particularly those on the pump, but they

afforded a daily opportunity to watch the development of the plumule as long as the viscid pulp lasted. I remember those on the evergreens died early, very early, those on the elms and plums succumbing next, whilst those on the hazel and hornbeam lived for some time, and actually grew for one or two seasons. Such is the picture your notes on mistletoes has reproduced from my memory, and which was one of my first initiations into the mysteries of the great and good mother nature. *Queens, N. Y.*

ON THE CARE AND CULTURE OF ROSES.

BY DAVID M. DUNNING.

Thanking you for your very kind request, Mr. Editor, I will endeavor to write something of my experience on the above subject. But first, if you will allow me, I desire to very mildly suggest that I think your Rose Editor "must have been a little off" the day he looked over the proof of my former article. The error of my own name is of little importance, but the errors in the names of the roses fairly made me shiver. If you will kindly correct them, they are as follows:

For Eugene Verdier read Eugenie Verdier; Anne de Driesbach—Anne de Diesbach; Marie Rudy—Marie Rady; Elise Balle White—Eliza Boelle, white; Mad. Auguste Persin—Mad. Auguste Perrin; Cecile Bonum—Cecile Brunner.

I am glad you did not get it Bummer. Of course, my writing was poor and careless, but then I supposed that the Rose Editor of the leading horticultural magazine of the country would at a glance produce the properly spelled name of almost any rose from the most illegible scrawl.

The writer has often been asked: Which is the best season for planting roses—spring or fall? and very often replies: Don't wait for the one or the other, but put some out the very first season after you decide to grow them, be it spring or fall. I have grown beautiful Tea roses by planting them among a bed of tulips after the middle of June, and good Hybrid Perpetuals can be grown in any garden border that will grow other flowers, if carefully set out early in spring and given a good mulching of well-rotted manure. It is a good thing to make a start on a small scale, and without any feeling as though it were a formidable undertaking. As one feels his way along, he will soon know wether he has sufficient enthusiasm and love for roses to become successful in growing them. Very few people have; and consequently about nine out of ten fail; but this does not make it any worse for the successful one. After one has become sufficiently encouraged and determined to succeed, I shall be thankful if the record of my own experience will be of any assistance.

Some one has written in regard to roses that it is not necessary to own a farm and a wood lot, &c., to grow them successfully. I have forgotten who the writer was and the supplemental directions given, but my own experience is, that the above auxiliaries are very desirable, and I would advise the reader if he desires to enter the arena of successful rose growing, so that his children may gather roses, without restriction, as free as dandelions, and so that he may return from exhibitions "prepared to make the family plate chest groan," that if he is not fortunate enough to possess the above requisites himself to at once make the acquaintance of some one who is more fortunate in that respect. Then in some convenient out-of-the-way place heap up a supply of turf, from new ground, if possible, and haul from the nearest brewery a few loads of spent hops, and procure a liberal supply of cow manure. After the first turning the three heaps can be worked together into one, about equal quantities of each. This should be turned several times during the summer season, and finally just before winter closes in. It will take from one to two years to get it in good condition for rose growing, and in fact for several years its condition will be constantly improving for this purpose.

My experience in growing roses has been almost wholly confined to bush kinds in beds and borders on the lawn. For this purpose select a locality somewhat sheltered from northerly winds. I make the beds sometimes in circular, sometimes in elliptical form, and sometimes in borders along a driveway or walk. Unless the soil is good and drainage already provided I excavate about eighteen inches, finally loosening up the bottom tier which is to remain. Good drainage is imperative and tile should be laid along the bottom of the excavation, unless there is already a drain passing under or quite near. If there is no outside drain accessible for a discharge, a fair substitute can be made by digging a hole about the size of a barrel, at the lower end of the excavation, which should be filled with loose stones. The retention of any portion of the excavated soil is a matter of judgment as to its quality and can only be decided by practice and experiment. As a general rule, if of fair quality the upper soil can be retained and mixed about one-half each with the compost prepared as above. If it is decided

not to retain any of the excavated soil procure some rich loamy soil and mix with your compost, using about one-half each. I round up my beds so that the center is often a foot or more above the lawn.

This has been criticized, but I think the advantages are in its favor. The ground should be well settled and in a natural condition before the roses are planted. A favorite plan of mine is to make up the beds in the spring and put out Asters or Gladiolus or bedding plants, and then put out Hybrid Perpetuals in the fall.

Aside from the considerations mentioned in the beginning, I prefer fall planting for these roses. They are then in a dormant condition; the ground becomes firmly settled before spring; the roots commence growing very early below the frost, and the plant gets the earliest possible start, thus reducing the check from transplanting to a minimum. When transplanted in spring, it is very important that it should be done before the buds have started, otherwise the growth is checked, which is a serious injury to the plant, and it is very important that the roots of the plant are kept moist during the period of transplanting. Do not allow manure to come in contact with the roots, nor even a very rich compost. This is one fruitful source of disease. Keep the manure below them, where they can go to it at their pleasure, or on the surface, as a mulching. I have often noticed the roots of roses growing away from the rich soil in the bed, and running out into the surrounding soil, and yet, without a liberal supply of fertilizing material to feed them success is impossible.

Some of the various forms of liquid manure are a great help for a short time previous to and during the June flowering season, and a mulching of compost, or well rotted cow manure, should be applied and worked into the surface soil from time to time, as the plants seem to require it. Water should be applied generously, especially during the flowering season. Evening is the best time for application. By a proper management of pruning and watering, one can have a supply of Hybrid Perpetual roses all through the summer and fall seasons. It is difficult to lay down rules for others in these respects. Each one must experiment and try for himself, and if he has not enterprise enough to do this and watch for the results, and profit thereby, he will not succeed.

Fall planting should not be made until after frost severe enough to cause the foliage to drop. After planting, cut them back, leaving only two or three shoots to a plant, and two or three buds to a shoot. As soon as severe winter weather sets in, the plants should be well covered with evergreen boughs. I have had good success in wintering the most tender of our H. P. roses, such as Louis Van Houtte and Eugenie Verdier, also the Hybrid Tea La France, and many of the tender Tea roses, with no other covering than evergreen boughs, having them now in my garden four and five years old, and some of our recent winters have been very severe. A blanket of snow over the boughs gives the very best possible protection, and I have frequently, during the past winter, when the temperature was below zero, run a sharp pointed stick through the snow and boughs, and found the ground free from frost, and this notwithstanding the ground was frozen solid when the boughs were put on.

After the first year I manage the pruning as follows. Cut away all the old wood in the fall, just before laying the plants down for the winter, and thin out the new growth, leaving from two to four of the best shoots. These are bent down in early winter some day when they are not frozen, and held there with stakes. Care and a little ingenuity must be exercised in handling the stiff, heavy shoots of some of the vigorous varieties, and in so protecting them that the heavy mass of bough and snow which they are liable to carry will not crush them. They break easily when frozen. In the spring, the first thing after uncovering (and do not be in too much of a hurry about uncovering), these shoots are cut back leaving from eight to twenty inches, according to the vigor of the plant. Always bear in mind that the more wood you leave the more work you assign the plant for the coming season; and the work of course should be in proportion to the strength of the plant. This is the only general rule one can have as regards pruning, and this is not safe in all cases, as some roses will scarcely bear any pruning at all; and there are some other features of pruning that can only be learned by experience.

I am often asked how I keep my roses so clean and free from insects. I always answer, keep them in a healthy and vigorous condition and you have accomplished the first great step in this direction. Water is the best remedy, and a good showering every evening is a terror to the insect tribe. The elevation of the beds above the level of the lawn, permitting a thorough application of the water and a free circulation of air and sunshine, and frequent stirring of the soil, are very disturbing to their coveted repose. The season of the leaf roller is short, and an occasional hour in the early morning

will soon place him "hors de combat," and an occasional hour can be given to the rose slug when it comes out to feed in the early evening if it becomes too numerous. I have never seen but one rose bug in my garden, and I clipped him in two halves with my scissors; each half ran off in a different direction, and I suppose they told such dreadful tales that no others have dared to appear.

Mildew has given me much more trouble than all the insect family put together. I know that good care and cultivation is a great preventive, but I never feel quite safe from an attack from it of more or less severity, especially late in the season.

The Rev. S. Reynolds Hole, in his unapproachable work on roses says: "He who would have beautiful roses in his garden must have beautiful roses in his heart. He must love them well and always. He must have not only the glowing admiration, the enthusiasm, and the passion, but the tenderness, the thoughtfulness, the reverence, the watchfulness of love. He is loyal and devoted ever in storm fraught or in sunny days. Not only the first on summer mornings to gaze admiringly on glowing charms, but the first, when leaves fall and winds are chill, to protect against cruel frost. To others, when its flowers have faded, it may be worthless as a hedge row thorn; to him in every phase it is precious."

We must remember that in this country we have never been so enthusiastic over roses as they have in England. Roses do not take to our climate as naturally as on the other side of the water, and if such care and thoughtfulness are necessary there, it is certainly absolutely indispensable to success here. I know of many instances of failure from no other cause, and I know of at least one rose garden in a neighboring State which was once the pride of the surrounding country, but the owner passed away. The same family continued in the place, and the same gardener cared for the roses, but after a year or two they did not thrive, and I was sadly surprised to note the difference. They all agreed that the roses had been quite a failure for the past year, and a number of reasons were given; such as, some gradual change of climate, or the soil was worn out, or a severe winter, or troublesome insects. I had not the heart to give them my opinion, but I felt that the one who cared for them was gone, and henceforth that was no place for roses. It is a great blessing for any busy man to have some recreation—something to break in on the monotonous treadmill of everyday cares and troubles, and those whose tastes lie in the right direction will find the culture of roses admirably adapted to this purpose.

For all the joys before one,
And of all the pleasures keen,
Next the joys of home and children,
There is nothing that I ween,
Like a garden full of roses,
In their colors bright and clear,
When their lover there reposes,
Oft a weary hour to cheer.

[The Editor is not the proof-reader, though of course he has to be held responsible for the proof-reader's errors. The best security against error in proper names is, that they be written with extra pains as to legibility.—Ed. G. M.]

EDITORIAL NOTES.

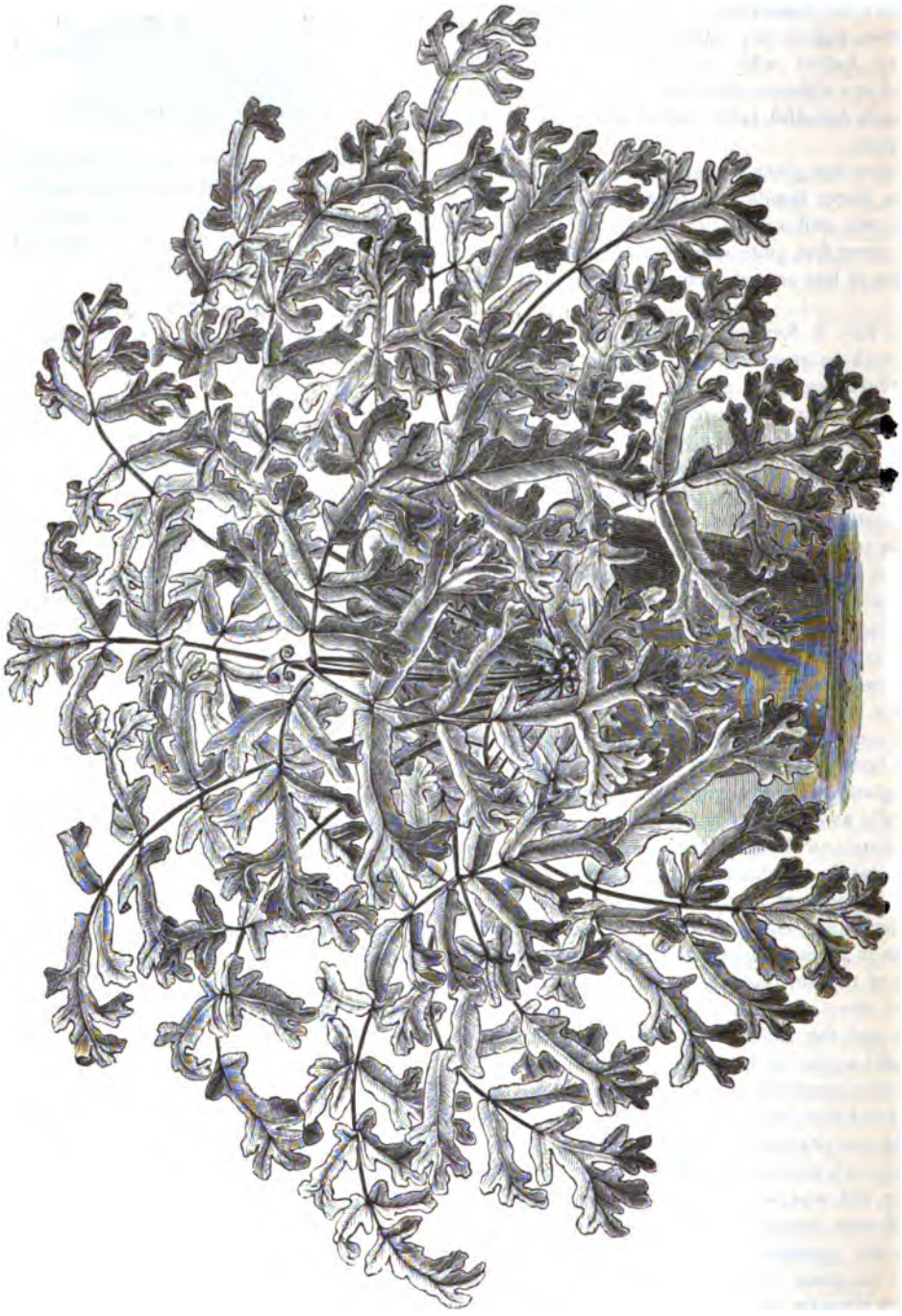
PANSIES.—We have from a correspondent a mass of paper and string appearing like a dish-cloth which had been wrung out previously to being put up to dry. Among the debris we found pieces of what appeared to have been originally pansies. Judging by numerous illustrations like this the art of sending flowers by mail is not well understood. We are sorry, as it always gives us pleasure to join with our friends in the pleasure of their successes.

TEXAN BLUE GRASS.—This is Poa arachnoidea, and promises to be one of the very best grasses for lawn purposes for Southern use. While it is so sensitive to heat that it will start into growth at a very low temperature, its roots run deep into the ground, and this enables it to hold on long after other grasses have had to succumb to summer heat and grass. It is allied to the Kentucky Blue grass, but is well characterized by webby hair under the flower, from which it takes its specific name, arachnoidea. It was so named by Dr. Torrey from specimens first found on Marcy's expedition into the Red river country.

HAZELTINE'S HAND WEEDER.—This is a steel tool about an inch wide, chisel pointed, then bent at nearly right angles for about four inches, and again bent towards the handle, so that the three lines form three sides of a square. The edges are sharp, so that the tool can be used as a scraper, as well as a narrow hoe. For light work, and in light soil it will be found useful.

THE ORCHIDS OF NEW ENGLAND—is a work announced by John Wiley's Sons, of New York. Forty species are to be illustrated. Its author is Henry Baldwin.

HARDY EVERGREENS.—It has been often shown in these columns that the term "hardy" is a very misleading one, especially when applied to evergreens. These are naturally gregarious, that is to say, they grow up in colonies, where one protects the other from wind. In this case they will easily get through a temperature of 30° below zero without any trace of injury; but the cultiva-



Osmunda Japonica corymbifera. (See opposite page.)

vor takes one and sets it out on the top of some bleak hill, where singly and alone it has to battle with the wind. The moisture is all dried out of it at little below the freezing point, and the owner writes to the papers that it is not "hardy." In his recent address at Rochester, Mr. Geo. Ellwanger very properly remarked on the importance of evergreen screens and belts to protect railroads from sweeping winds and snow drifts, as well as winter protection generally. The value of screens for tender trees was shown in the fact that the only specimens of the Sequoia or great tree of California, east of the Rocky mountains, which had grown fifty feet high without injury by winters, were on the grounds of Ellwanger & Barry, well sheltered by evergreens.

FORSYTHIA SUSPENSA.—Some plants trained to single stems about six feet high, and then left to form heads, are among the prettiest things we have seen this season. They rival Kilmarnock willows in interest.

ROSES IN HAVANA.—A correspondent of the *Journal des Roses* says that December is the spring month in Havana, and that the rose is the popular spring flower. La France is one of the most in use, though it does not produce very double flowers in that climate, but it gives out the most delicious of all rose perfumes. For climbing Marechal Niel is the most popular.

NEW OR RARE PLANTS.

OSMUNDA JAPONICA CORYMBIFERA (see illustration)—Almost all lovers of hardy ferns are familiar with the beautiful cinnamon fern of the woods, Osmundia cinnamomea, and the Royal fern, Osmunda regalis; and may form some idea from these of this pretty fern which has been introduced to notice by the well-known firm of James Veitch & Sons, who furnish following memorandum regarding it:

"A very distinct and beautiful Japanese Fern of dwarf habit; unquestionably the best Osmunda for decorative purposes, and especially for pot culture, yet introduced.

"It is well distinguished by the following characteristics: The fronds are crowded; their stipes are erect or sub-erect, quite smooth, slender, and of a bright rosy pink color; they rise to a height of about 4 inches, and support leafy expansions of deltoid or triangular outline that bend away almost horizontally from the common center in all directions. The rachides are paler in color than the stipes; each rachis usually carries two pairs of opposite pinnæ, and a terminal one; each pinnæ of the lowest pair has a short footstalk, and a lanceolate or nearly oblong blade, which has two rather large lobes at the base, and is cut at the apex into several rounded divisions; occasionally the blade furcates, and each division is crested. The second or anterior pair of pinnæ are shorter, almost sessile, without basal lobes, and with the divisions at their apices less dilated; the terminal pinnæ more or less resembles those of the lowest pair.

"The compact dwarf habit of the plant, the distinct cristation of the pinnæ, and the peculiar soft color of the fronds, which offers a pleasing contrast to every other Fern, combine to give this Osmunda an unique character that cannot fail to recommend it to the attention of cultivators."

PICEA AJANENSIS.—The *Botanical Magazine* gives a colored plate of this beautiful spruce; one of the most beautiful perhaps of the whole family. The young flower buds or cones are crimson as are those of the larch, and the young growth is also colored. It has been confused with the Picea alcoquiana in nurseries, from which Dr. Hooker shows its distinction. It has also been confused with Abies sichensis, formerly A. Menziesii, and some others; and may be the same as Veitchia Japonica of Lindley. It will be among the hardiest of our spruces. It is from Japan.

MAGNOLIA THURBERI.—This has flowered near Philadelphia this season. It proves to be but a dwarf and compact variety of the Chinese magnolia, M. conspicua. It has but two verticials of three each in the petals of the flower; while the usual large form has three. The series of three outer ones being reduced to mere scales, but there are often only six well formed petals on the old form. The habit is however very pretty, and it will be a popular variety.

ROSE, SECRETARY NICHOLAS.—One of the most beautiful roses ever introduced was the Geant des Battailes, but it was a poor grower, easily mildewed, and has measurably disappeared from cultivation. The *Journal des Roses* gives a colored plate of a new one by Schwartz, which reminds us much of the old favorite, but is said to be a free and vigorous grower. If so, it will be a very popular variety.

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

NEW AND BEAUTIFUL CROTONS.

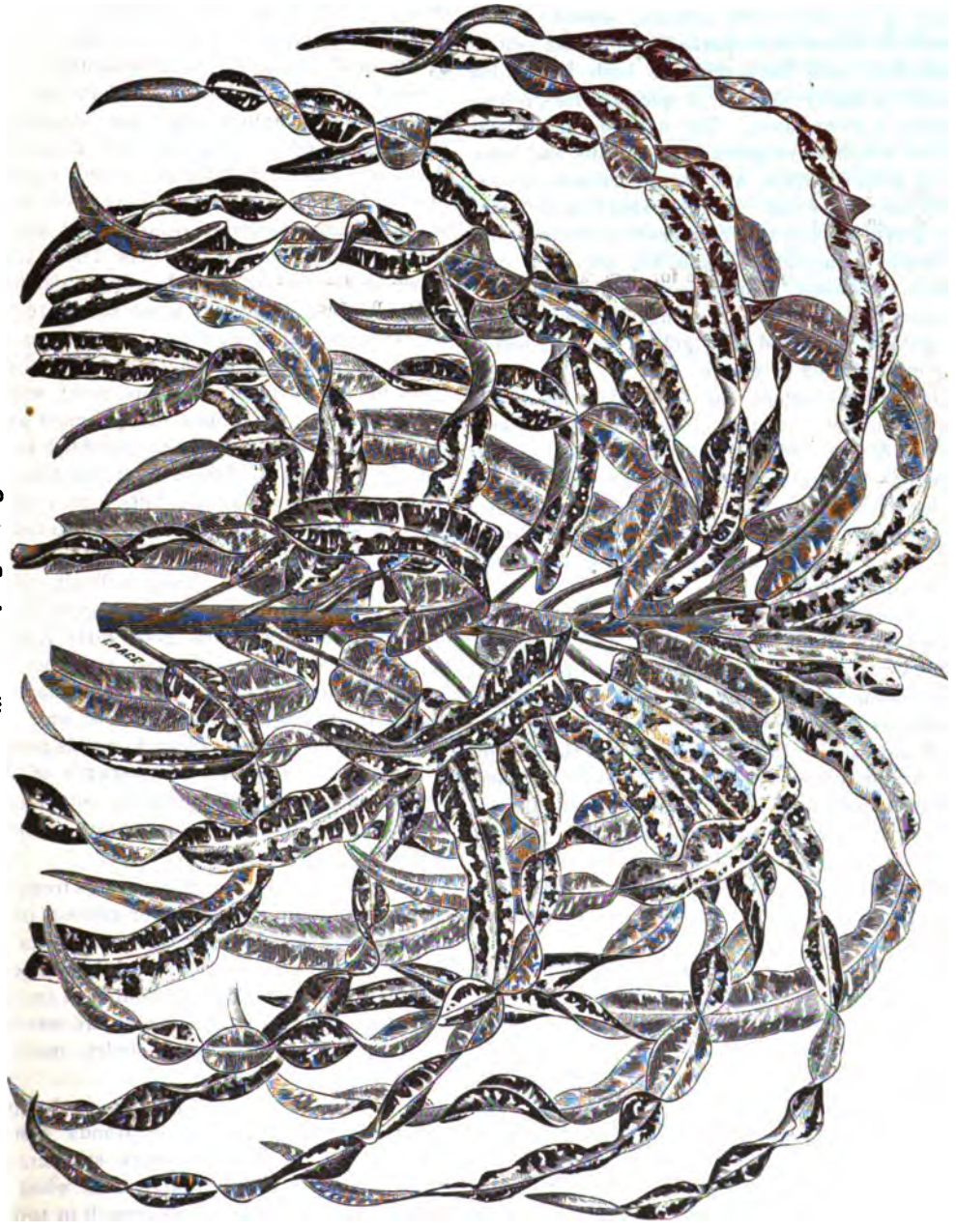
BY J. W. C.

Crotons constitute a genus of remarkably handsome Euphorbiaceous plants. Of late years they have become indispensable plants for ornamenting the stove and warm conservatory. They are also exceedingly valuable for decorative purposes when planted out during the summer with other tropical plants. Crotons are of easy culture, and can be propagated from cuttings at almost any season of the year, in sand or in bottles of water. They should be potted in rich loam, with a little sand and peat. They require good drainage, a strong moist heat, and plenty of light, to bring out their brilliant colors.

The varieties of crotons are so numerous that it is a difficult matter for many to decide which are the best. For this reason I will give the following list of the most beautiful and distinct sorts. They may be divided into six or seven distinct types. viz.: Disraeli, or lobed section; maximum, or broad leaved section; undulatum and Veitchii, medium sized; Youngi, long leaved; pictum, the small sized; interruptum, pendant foliage. To give all these varieties a separate and full description would take several columns of the MONTHLY. Therefore the descriptions are necessarily brief. Of the undulatum and Veitchii type, aneitumensis, is a splendid species of the Weismanni style, but quite distinct in color. The midribs and margins of the leaves are bright gamboge yellow, the blades are crossed with parallel bars of the same color, upon a rather light olive green ground. "Day-spring" is a beautiful variety from New South Wales, with leaves oblong lanceolate in form, 15 to 18 inches long, spreading, deep olive green ground color, some with a large portion of bright orange yellow, tinged with crimson, and others blotched here and there with the same tints. Magnifica has a habit somewhat like Day-spring, but the coloring is quite distinct from it. Challenger is a distinct long leaved variety. The variegation is very striking. The midribs are at first creamy white, gradually becoming suffused with red, deepening to bright carmine. Queen Victoria is a grand croton. Some of the leaves of this variety measured 17 inches from the stem, and 3 inches broad. The ground color is of a rich golden yellow, beautifully mottled with green; midribs and veins are of a rich magenta, changing with age to a vivid crimson. Weismanni still holds its place in many collections. It has a ground color of bright green, striped and mottled with golden yellow. Hawkeri and latiniaculatus are both of recent introduction. To me they seem hardly distinct enough. The habit and coloring is much the same. Rubra lineatus, from New South Wales, has leaves of pale yellow; many of them tinged with rose. They deepen with age to a golden yellow and olive green. The midribs and veins become crimson. The margin is also crimson. Etna is also a pretty variety, with the habit of the above, but distinct in color. Of the Youngi type there is Bragæanus, a fine croton. The coloration is extremely varied. Many of the young leaves are pale yellow, marbled and mottled with light green. Others, again, are spotted with golden yellow. The older leaves are deep olive green, spotted and speckled in many ways with bright yellow, of various shades, and having crimson midribs. Harmonianum has leaves of a rich golden yellow on a dark green ground. In Hanburyanus the coloring is very effective, being in an irregular blotching manner, with creamy white and yellow shades, changing to crimson. Youngi is an old but a magnificent croton. Its leaves are long, blotched with yellow and red. Of the Maximum type there is Andreana, of a very neat habit and free growth. It colors beautifully. Baroness James de Rothschild has young leaves of a light olive green, with midribs and veins of golden yellow. As the leaves become older they change to a brilliant crimson. C. fasciatus is a fine variety, of bold habit, with leaves 9 to 10 inches long, 4 to 5 inches wide and beautifully marked with the blades barred with golden yellow on a green ground. In Mortii the ground color of the leaves is deep glossy green, the midribs yellow. The leaves are also barred by broad lines of the same color, the broadest part of the leaves being near the apex. The leaves of Williamsii are strongly flushed with violet-crimson. The veins change to a deep crimson—a charming variety. In Comte

de Germany we have a handsome and distinct sort, with bright crimson midribs, blotched with golden yellow on a bright olive green ground. Bergmanni has a broad band of creamy white and the deep olive green ground is pleasing. The Volutum has curled leaves, elegantly mottled with yellow on a green ground—very distinct.

We now come to the Disraeli type. Earl of



Croton Caudatus tortilis.

down the center of each leaf, enclosed with a deep green margin. Recurvifolius is of the Volutum type, but the midribs and veins are crimson, bordered with yellow. The variegation is well marked, Derby has a bright yellow stem; the midribs are of the same rich color, gradually deepening with age until they become suffused with red. Duke of Buccleugh has leaves beautifully mottled

with golden yellow, on olive green ground. The variety, Disraeli, is still popular, and makes a fine exhibition plant. Its leaves are deep green, inoculated with orange red. Fordii is a dwarf-growing variety, with crimson midribs. The blade is barred and marked with golden yellow. Splendens and Bismarcki are both fine. The former is highly colored. A splendid free-growing variety is Evansianus. The newly-formed leaves are of a light olive green, with midribs and veins of a golden yellow, and the interspaces spotted with the same color. As the leaves become older, the green deepens and changes to a bright bronze crimson. Maculata Katanii has leaves of deep green, profusely spotted with yellow. Of the Pictum type there is Aurea maculata, with leaves bright green, spotted with golden yellow; one of the most distinct of its type.

In the Interruptum class, or pendant foliage, we have Caudatus tortilis, introduced by Messrs. Veitch & Sons from New South Wales, and of which the annexed illustration gives a good idea. Some of the leaves are a deep olive green, with a golden yellow central band and crimson midrib; the yellow becomes suffused with crimson by age. It is indeed very fine.

Cronstadtii is of a deep glossy green color, variegated with bright golden yellow; leaves twisted, curled, and crisped into many forms. Sinitzinianus comes from New South Wales. The foliage is a deep olive green, variegated with straw yellow, crisped and undulated. In Princess of Wales the midribs are bright yellow, with a broad band of the same color on both sides, the remainder of the blade is of a light olive green, spotted and marbled with yellow. In Nobilis the colors are crimson, yellow and green in many shades. Lastly, in the Irregulare class there is Multicolor with leaves of a dark green, marked with yellow and crimson, distinct and good. *Laurel Hill, Philadelphia.*

[With this "C" sends us a collection of leaves of the kind described, and, much as we have always advocated the culture of these beautiful plants, we were more strongly impressed with their utility for floral ornamentation. These beautiful leaves gave a charm to the library table with cut flowers which few real flowers could give.

As a matter of scholarship we suppose the more critical readers of the GARDENERS' MONTHLY will complain of the terminations in nomenclature, croton being a neuter noun, we believe. But we have thought best to take the names just as they have been given by the European firms who have sent the plants to the New World.—Ed. G. M.]

FERNS.

BY W. A. MANDA.

In attempting to describe some of the most showy of this large class of plants, I think the genus Adiantum, can with every right be placed at the head, being the most beautiful one; and surely there is not a place where ferns are grown, in which the Adiantum would not be represented with a few species. They are also more popular than any other fern; for every one knows the Maiden Hair fern, yet, sorry to say, there are even a good many gardeners who do not know the real plant this name was applied to. The A. Capillus veneris is the true Maiden Hair, but unfortunately it was soon lost to sight when the more showy species were introduced from tropical countries, and it is now only in Botanic Gardens and collections of hardy plants that we meet with this modest plant. Adiantums inhabit most parts of the globe, but we are chiefly indebted to South and Central America for the most beautiful kinds. All of them grow in compact tufts, from subterrane short rhizomes, on which account a limited number can be propagated by dividing the plant. Their culture is by no means difficult; they are grown best in ordinary pots, with good drainage in a compost of two parts good turfy loam, two parts leaf-mould, one part peat and one part of sand. The dreaded enemy is the small snail, which prefers their tender growths before any others, and they should be kept clean from this pest.

The number of species and varieties of Adiantum is much over a hundred, all worth growing for collection, but the following are among the best and most useful kinds:

A. cuneatum—An unrivaled species from Brazil, for decoration and especially for cutting, in which state it keeps fresh longer than any other. The fronds are of medium size, slightly arched, the pinnules small, cuneate. It flourishes in the intermediate house, and plants that are intended to cut from, should be grown cooler, more airy, with scarcely any shade.

A. cuneatum var. gracillimum. — A splendid variety of the former. The fronds are more divided and the pinnules much smaller, which gives it such a fine appearance to what justify the name. It is a mistake to grow it in too much heat; it should be grown in the same manner as A. cuneatum, and only in this case you see fine compact specimens. It is of garden origin, and a good plant for exhibition.

A. tenerum.—A good species from Jamaica,

which is going out of cultivation after giving rise to—

A. tenerum var. Farleyense.—This is certainly the most beautiful of Adiantums, if not of all ferns. The fronds are large, arched, severally divided, pinnules also large, rhomboid, of light green color. It is a pleasure to see at the flower shows plants five feet through. This plant requires stove temperature and to be well guarded against drip. The propagation is only effected by dividing, as I do not remember having seen any fertile fronds.

A. Peruvianum.—A large growing species from Peru, attaining as much as four feet in height. The fronds are large decompound, pinnules alternate, large on long petioles. A stove species.

A. exisum.—Dwarf species from Chili, fronds of medium size, pinnules small, dark green. It is easily grown in the intermediate house.

A. exisum var. multifidum.—A garden variety of the former, differing in having the fronds larger and severally divided; grows well in the same temperature as its parent.

A. trapeziforme.—Another grand plant from South America; grows over two feet high, the fronds are large, pedately divided, pinnules trapeziode, rather large. This plant should receive stove temperature.

A. trapeziforme var. cultratum.—Much more robust in growth and still finer plant than the preceding. The fronds are large, fan shaped, pinnules narrower, more closely set. Delights in good heat.

A. macrophyllum.—Distinct plant from any other. The fronds are long, simply pinnate, pinnules large opposite, light green. Native of Jamaica and succeeds well with the stove kinds.

A. concinnum.—This is one of the most graceful Maiden Hair we have. Grows about a foot high, the fronds are long, arching, pinnules small, light green. This stove species is very useful for baskets and vases. Native of South America.

A. tetraphyllum.—Another good species from South America, growing about two feet high. The fronds are of medium size, pedately divided, segments oblique, dark green, useful plant for decoration on account of its dense habit. Stove temperature is necesary to grow it well.

A. glaucophyllum (amabile).—This is a deciduous species from Mexico, and should be grown in the stove. It is of pendulous growth and therefore adapted for vases and baskets. During winter, its resting season, should be kept rather dry and cool, and in summer requires more shading than many others.

A. decorum (Wagneri).—Useful plant from Peru. It resembles somewhat A. cuneatum. The fronds are larger, more rigid, and less divided. Grows well in the intermediate house.

A. venustum.—A delicate species from Himalayas. Grows scarcely a foot high, the fronds are small, pinnately divided, segments nearly half round, light green. The intermediate house is best to grow it in.

A. formosum—Handsome and robust plant from New Zealand. The fronds which come sometimes from very deep ground are very large, supradecompound, pinnules of medium size, bright green in color. This species belongs to the intermediate house, but will thrive well in much cooler house.

A. hispidulum—Is of dwarf compact growth, fronds are pedately divided, bended down, pinnules bright green. Native of Ceylon; requires the intermediate house.

A. fulvum (pubescens)—Robust species, native of New Zealand, fronds of moderate size, rigid pedately divided, segments little hairy, dark green in color. It can be grown even cooler than the intermediate house.

A. Williamsii.—One of the intermediate house kind and worthy to be in every collection. It grows about two feet high, fronds are severally divided, pinnules small, of a good substance and light green color. Unacquainted with its origin.

A. Bausei.—This beautiful addition to the stove kinds is of garden origin, and said to be a cross between A. decorum and A. trapeziforme. The fronds are gracefully arched, pinnules of drooping position, which gives quite a distinct character to this plant. Raised by Mr. Bause.

Botanic Gardens, Cambridge, Mass.

ROSE, ANDRÉ SCHWARTZ.

BY WALTER COLES.

I was pleased to see the remarks at page 104, on the so-called true tea Jacqueminot, André Schwartz. In common with "T. F. S.," I have yet to learn that it has been a success anywhere. For my part, I consider it a complete failure. I did not purchase so many of it as some of my brother florists; still I have seen enough to know that it has no value for winter blooming. It is not so good as our old Agrippina, or Douglas. A florist in Philadelphia, who bought a large stock of it when first sent out, told me he would be glad to sell his whole stock at almost any price. I am surprised to see that most of our leading florists

recommend it in their catalogues, though they are careful to say only what the introducer claims for it, adding that "if it sustains the merits claimed for it, it will be invaluable." Nanz & Neuner, of Louisville, describe it in their catalogue as almost worthless, but they are the only firm I have noticed that speak of their own experience. Etoile de Lyon, with me, makes a good bud, but not as free for winter blooming as Perle des Jardins. I am informed by several good rose growers that Etoile de Lyon is a first-class summer variety. I shall give it a good trial this summer. Our friend "T. F. S." asked, what has become of the Duke of Connaught, if it has returned to England? If "T. F. S." is in Philadelphia at any time during winter, I would advise him to call at Forty-ninth and Market streets (Craig & Bros.), where he can see the Duke in its glory. I have heard it condemned by many, but after visiting Mr. Craig's greenhouses, and seeing it do so well there, I at once ordered 100 plants, and will give them a good trial next winter, and report my success in GARDENERS' MONTHLY. I am waiting patiently for a thin slice of Mr. C. F. Evans' rich cake—the Wm. Francis Bennett roses. No doubt it is an excellent variety. *Clayton, Del.*

ORCHIDS IN FLOWER AT THE BOTANIC GARDENS, CAMBRIDGE, MASS.

BY W. A. MANDA.

Cypripedium hirsutissimum.—A fine species, with long, green foliage; flowers produced singly on stalks eight to ten inches long, are very large, measuring five to six inches across; petals are purple, sepals and lip green, with numerous dark spots. This plant does well in the intermediate house, and requires a good supply of water during the growing season.

C. Hookeræ.—This plant is more valuable for its beautiful foliage than flowers, which are distinct in shape from any other species. The color is yellowish brown, with dark points; the leaves are short, dark green, beautifully marbled with white. Being a native of Borneo, it requires to be grown in East Indian house, and should receive careful attention, as it is a more delicate grower than many.

C. venustum, var. spectabile.—This is a grand variety, seldom seen in collections. The leaves are much larger than in the type, dark, beautifully blotched and marbled with light green. The flowers are also distinct, the sepals are much broader, and the dark spots more regular than in venustum. This plant does well under the same treatment as the common variety.

Phalænopsis grandiflora.—This magnificent orchid should be in every collection, where East Indian heat could be given it. The leaves are bright green, flowers very large, sepals and petals pure white, broad, well-rounded, lip orange yellow, changing to bronzy, and streaked with red in the inside. This is the Bornean variety, which is superior to those coming from Java. This plant should never suffer from drought, and while growing a liberal supply of water should be given. Being a profuse bloomer, this plant is seldom seen in good health. To get a good specimen, the spikes should be cut off from weak plants, especially when making new leaves. It grows best in baskets, with sphagnum potsherds and charcoal.

P. Schilleriana.—This is another splendid species, and one that growers can never have too many of. The leaves are dark, finely mottled with white, the roots are also curious and distinct. The flowers are produced on a much branched spike, gracefully bending. They vary in shade from light to dark mauve, spotted with red inside the flower. It requires the same treatment as P. grandiflora, only it could be grown in a much cooler house than the preceding.

Epidendrum aurantiacum.—A good species of this large genus. In aspect, it resembles a Cattleya. The flowers are deep orange color, and of moderate size. It grows well either in pots or baskets, with peat and sphagnum, in the intermediate house.

E. elongatum.—Of a graceful habit, indeed, this plant at first sight could be mistaken for an ærides, but the flowers would tell, and were they only larger, this plant would be worth growing. The flowers are produced on a long spike, thirty to forty together, of a bright rose color, with a yellow spot in the center of the lip, which is finely fringed.

Dendrobium Devonianum.—This is a very showy plant when in flower. It may be well compared with D. Pierardii, both being deciduous, dropping habit, and produce flowers in pairs from nods nearly all the length of the stem. The individual flower is about two inches wide, petals and sepals are pinkish-purple, lip yellowish. It grows best in baskets, and needs a good supply of water during summer and strong rest in winter.

D. nobile.—This popular and beautiful species holds its place against all the new comers, and is certainly one of the most useful Dendrobes. Easily grown, either in the intermediate or East Indian house, in pots or baskets, with peat, sphagnum and charcoal. It is evergreen in habit, and produces its beautiful flowers for two or three seasons

from the same growths. The flowers are three to four inches across, sepals and petals, and are pinkish, lip of the same color, with a large crimson blotch in the centre. After it has completed its growth, it should be put to rest, and can be had in flower any time when wanted, even till summer, if kept cool and dry.

D. nobile var., differs from the type by having the lip nearly double the size, flatter and more pointed. The crimson spot is also much darker. This is a fine variety.

D. Wardianum.—This splendid species resembles D. crassinode, a strong grower, free bloomer. It is deciduous, and on account of the pendulous habit, should be grown in baskets with peat, sphagnum and charcoal. This plant presents a grand sight when in flower. The blooms are of a large size, petals and sepals white and pink, lip orange with two dark spots on the inside.

Maxillaria ochroleuca.—White and yellow flowers on short stalks, not of any merit.

M. squalens.—Large leaves in pairs from a round bulb. Flowers on a short raceme, of whitish color, lip dark.

Schomburgkia undulata.—The spike is produced from a pseudo-bulb a foot high. Flowers in an umbel, about ten to a spike, petals and sepals reddish brown, lip light rose. It grows best in baskets, and requires the same treatment as Cattleyas.

Cymbidium sinense.—This is a terrestrial species, bulbs are round, leaves bright green about two feet long. Spike is three feet long, flowers more than an inch across, yellowish brown and sweet scented.

Dendrochilum glumaceum.—Very pretty little plant of compact and evergreen habit. Its dropping spikes support a quantity of small white flowers. It is easily grown in pots in a mixture of sphagnum, peat and charcoal. This plant should never receive too strong rest.

Bletia hyacinthina.—This beautiful Chinese plant grows well in a cool house in pots with good turfy loam and dry cow manure. The flowers are of beautiful rose and pink color on a spike a foot long.

Lælia anceps.—A most beautiful and useful species. The long spikes are produced from short pseudo-bulbs, the flowers, three to four in number on a spike, are each four inches across; sepals and petals of a delicate rose and lilac, lip beautiful purple color, the throat is yellow with purple rays. This plant does well in a cool house in a basket with peat and sphagnum.

Cypripedium insigne, C. purpuratum, C venustum, C. Sedenii, C. longifolium, Lycaste Skinnerii, and Epidendrum floribundum, Maxillaria variabilis variety lutea, which were described last month, are still in beauty. *Botanic Gardens.*

EDITORIAL NOTES.

LÆLIA ANCEPS.—At the January meeting of the New York Horticultural Society, a plant of a variety of this species was exhibited by Mr. Geo. Such, of South Amboy, which had eight fully-developed flowers from a single bulb. Can any grower beat this?

AZALEA, MISS BUIST.—A correspondent sends us a specimen of this pure white azalea. It behaves as represented, keeping stiff and firm long after other white azaleas have wilted.

CURE FOR MEALY BUG.—A correspondent of the *Journal of Horticulture* has found equal parts of coal tar and clay, mixed with water until it is like cream, and applied with a brush, is certain death to mealy bug, and is in no way injurious to the plants, at least, hard stemmed ones, like grape vines.

STEAM HEATING.—If experience is any test of value, it may be of interest to say that Mr. C. F. Evans, of Frankford, well known in connection with the Francis Bennett rose, has given a second order for a steam heater, being so well satisfied with the first trial. J. C. Wood & Bro., of Fishkill, are, we believe, on their third introduction of steam apparatus.

FORCING LILACS.—A correspondent of a San Francisco paper says that the lilac forcers (which, by the way, he translates literally, as "warmers of lilac") of Paris get very fine flowers by pinching out all the leaf buds while forcing the plants, leaving the flower buds only to perfect. The plants are always thrown away after being forced, and new ones raised continually to take their places. A temperature of 75° is employed. Some 6,000 plants a year are sacrificed for Parisian cut flowers.

NEW OR RARE PLANTS.

IMPATIENS SULTANI.—Everybody knows and admires the common, annual "lady slipper," or "balsam," of our gardens, but there are perennial species which make extremely handsome pot plants, when under warm greenhouse, or "stove" culture, as it is called in England. A new one under the above name has been introduced by Messrs. Veitch & Sons, of Chelsea, near London,

of which we are able to give the following illustration, and some account of the plant, furnished us by these gentlemen:

Impatiens Sultani.

"This is the handsomest stove balsam we have ever seen, surpassing all the older species that still remain in cultivation, in the brilliant coloring of its flowers, in the profusion with which they are produced, and in the length of time the plant continues in bloom. It is a suffruticose plant, with numerous herbaceous, erect stems, furnished with ovate-lanceolate leaves, chiefly at their extremities, from the axils of which, the brilliant, rosy-scarlet flowers as large as a half crown piece, are produced either singly, or in twos and threes."

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Flower gardening has its charms, and that class of gardening which deals with landscape effects is delightful. But it is doubtful whether these give more pleasure than a well ordered fruit and vegetable garden, or a nicely kept and well cared for orchard. The small gardens attached to residences of moderate means, are often far more attractive than the thousand dollar efforts on lawns of people of more pretensions to taste and wealth. Indeed, it is too often a subject of regret that, where there is a beautiful specimen of landscape gardening to be seen, the vegetable garden, instead of being a beauty spot, is a mere "truck patch" torn up by the plow, rooted about by the harrow, in holes and hills everywhere, with dirt and filth on the "headland" which serves for a "track to the patch," one can scarcely pick his way. We use the masculine term deliberately, because ladies are never known to visit these places. There is nothing attractive to the delicate mind. The vegetable garden is solely a matter of profit. It is in competition with the market stand. If a bushel of potatoes cost a dollar, the gardener must produce them for ninety-nine cents, or his occupation is gone. Hence, the horse and plough only must be thought of. The road must be wide enough to haul manure in with the cart, and the horse and hoe-harrow kept in view when the rows of vegetables are provided for. But in the neat cottage garden we find a main path of gravel or grass, neatly kept. An edging of box, or some other dwarf growing plant, a border two or three feet wide, in which are peonys and double buttercups, rockets, sweet-williams, love in the mist and love entangle, and loads of real flowers, showy, sweet-scented and enchanting. Then there are the back-grounds of currants and gooseberries, or trained fruit trees, the beds of raspberries, with their deep mulch to keep the soil cool. Blackberries trained to stakes, so that one may carefully get among them, and with surface dressings of rich manure, so that the fruit may be sugary, succulent, and jovial to look upon. The beds of asparagus, herbs, onions, and salads are all neatly lined out, and not a weed to be seen anywhere. Who that loves gardening has not met with such a scene? and who, once seeing, would ever forget? No plough or horse ever enters there. The digging fork and the wheelbarrow are the ruling powers, and when at rest, are found enjoying themselves in a regular palace of a "toolery" at the garden end. There is a pleasure in such gardening for which no penny saved in the market-house, or at the peddlar's wagon is any sort of compensation. But is there any saving? We think by no means always. We know of some good vegetable gardeners who will get more out of a rod of land with the spade and the hoe, than the horse man with his best machinery will get from an acre. Of course, all this is intended for the encouragement of the amateur gardener. In your conventions and horticultural meetings, he is rarely considered. The market man and the thousand acre orchardist have it all their own way. We do not want to neglect them. They should not be neglected. The men who grow fruits and vegetables for market on a grand scale are among the makers of our earthly paradise. We give them many a chapter in our columns. But they do not give all the pleasure there is in gardening, nor by any means all the profit.

Just now, we are reminded of these things, because it will not be long before we shall be in the midst of horticultural meetings and conventions. These have lost, in a great measure, their popular charm. The best people in the towns or cities where the meetings are held, seldom attend them. They are looked on simply as trade gatherings, in which the community at large has no interest. It should be the aim of these bodies to interest all. They should never forget that there are amateurs who love, as well as growers who profit by, the advance of horticulture.

On this occasion we will direct our chapter to the wants of the amateur, and especially in relation to the vegetable garden.

Peas for a fall crop may be sown. It is, however, useless to try them unless in a deeply trenched soil, and one that is comparatively cool in the hottest weather overhead, or they will certainly mildew and prove worthless. In England, where the atmosphere is so much more humid than ours, they nevertheless have great difficulty in getting fall peas to go through free from mildew; and to obviate these drying and mildew-producing influences, they often plant them in deep trenches, made as for celery, and are then much more successful with them.

Cabbage and broccoli may still be set out for fall crops, also requiring an abundance of manure to insure much success. Lettuce, where salads are much in request, may yet be sown. The Curled Indian is a favorite summer kind; but the varieties of Cos, or plain-leaved kinds, are good. They take more trouble, having to be tied up to blanch well. Many should not be sown at a time, as they soon run to seed in hot weather.

At the end of June, some celery may be set out for early crops, though for the main crop a month later will be quite time enough. It was once customary to plant in trenches dug six or more inches below the surface; but the poverty of the soil usually at this depth more than decreases the balance of good points in its favor. Some of our best growers now plant entirely on the surface and depend on drawing up the soil, or the employment of boards or other artificial methods of blanching.

Beans produce an enormous crop in deeply trenched soils, and are improved as much as any crop by surface manuring. We hope this method of fertilizing the soil will be extensively adopted for garden crops this season. Those who have not yet tried it will be surprised at the economy and beneficial results of this practice.

Cucumbers for pickling may be sown this month, and endive for fall salad set out. Parsley for winter use may be sown now, in boxes of rich soil, and set in a cool, shady place till it germinates.

Asparagus beds should not be cut off after the stalks seem to come up weak, or there will be but a poor crop the next season, and the beds will "run out" in a few years.

Tomatoes, after trying all kinds of trellises recommended, will be found to do best on stakes, tied up singly. It is best to plant a strong pole, as for Lima beans, with the plants when first set out, and tie up as they grow. Market-men generally let them grow as they will, on the ground, which, perhaps, although not yielding as much, costs less labor, and may thus be most profitable.

The Swede turnip, or ruta-baga, should be sown about the end of the month. A well enriched piece of ground is essential, as by growing fast they get ahead of the ravages of the fly. Manures abounding in the phosphates—bone-dust, for instance—are superior for the turnip.

Sweet potatoes must be watched, that the vines do not root in the ground as they run, which will weaken the main crop of roots. They should be gone over about once a month, and, with a rake or pole, the vines disturbed somewhat from their position.

Parsley for winter use may be sown now in boxes of rich soil, and set in a cool, shady place till it germinates.

Herbs for drying for future use, should be cut just about the time they are coming into flower. Dry them in the shade, and after sufficiently dry to put away, tie them in bunches, and hang in a cool shed, or place them loosely between the paper, and stow away in cupboards or drawers; the last mode is by far the cleanest and most approved plan with the best housekeepers. Some, indeed, powder the leaves at once after drying, and put them away in bags, ready for use.

COMMUNICATIONS.

A FEW WORDS ABOUT TEA.

BY IGNORAMUS.

Perhaps the question of tea culture may be considered exhausted in our region (near Summerville, S. C.), when we see the failure of the government tea farm, which, for awhile, promised such favorable results. Any one now visiting the neglected grounds would sigh over the miserable condition of the plants, hundreds dead and as many more leafless and dying. The farm is deserted, as I believe the government refuses further aid to the scheme.

Let me now mention a few facts with regard to tea culture, which cannot be gainsaid.

Six years ago we obtained from the Agricultural Department, at Washington, some small, delicate tea plants, which were carefully planted in the poor, sandy soil of our Pineland garden. For awhile we were rather hopeless as to their surviving, many of them looked yellow-leaved and sickly; but gradually they assimilated themselves to the uncongenial soil, and put out both buds and

flowers. Now, after five years of growth, we have strong, dark, shining-leaved bushes, perfectly healthy, having withstood untouched the terrible killing frosts of the past winter, which have ruined our orange trees and oleanders, and even affected our roses.

We believe the secret of the culture of the tea plant is, that where it is planted, there it must remain, undisturbed. We never dig around our bushes, the soil being so light and sandy, generally removing the weeds by hand, or with a very light hoe.

A neighbor who had his tea plants long before we got ours, has handsome, spreading bushes growing in the same sandy land as ours; some seeds from his plants have by accident fallen among the debris along the high road, and have grown into nice plants, which can now be seen there, showing how perfectly easy is their culture. If the above account proves interesting, I shall have great pleasure in giving further information as to tea raised from seed saved from our own bushes.

Charleston, South Carolina, Feb., 1884.

[There have been singular mistakes made from the first in regard to tea culture in the South. Some twenty-five years ago the government thought it would like to know whether the Chinese tea would grow in the South, and they sent an agent to China to get seeds. At that very time, hundreds of tea trees were growing in the South, producing seeds, and nurserymen were raising plants for their trade both from these seeds and from cuttings. Any nurseryman could have told the government that the tea plant would grow very well in the South, and on a year's notice could have furnished, under contract, as many plants as desired for distribution. But the seed came, plants raised, and distributed everywhere, and that was about the last of it.

During the last few years, the government again tried its hand. Again it did not appeal to nurserymen or tree growers of experience, and again we have the result in the announcement that it "can't be done."

Now, this is all nonsense. The tea plant has been grown successfuly, and is still growing successfully in many parts of the South. Tea has been made from the leaves as good and as cheap as the Chinese ever made. Let the government give but a bounty—protection, if you like to call it—for a few years for private enterprise, and we will guarantee the success of the Chinese tea plant as a tea product in America. We do not need hundreds of acres for experiments. Give premiums for an acre, or half an acre, and for teas of various qualities from the leaves, and give guarantees that these premiums shall continue from year to year, till experience is improved on, and there will be no more reason found against the permanent success of the enterprise, than there was against beet root sugar culture in France. That would never have been a success but for the protection Napoleon gave it.—Ed. G. M.]

GRAFTED GRAPE-VINES.

BY J. K. TRUMPY.

It is strange that the French, after having lost so much through the Phylloxera, should be so slow to see the use of the American grape to graft their varieties of Vitis vinifera on. We know that Taylor's Bullit, Elvira, and many others are indestructible; their root system is entirely different from the Vitis vinifera. Only one thing is necessary, and that is, they ought to be grafted above ground; for if they are grafted in the ground, they will throw out roots which will be again exposed to the Phylloxera. I think it is this that has not been considered. They have now a silly law to exclude the American grape; but why should not we in America consider this matter more closely? Some of the finest delicate grapes are also delicate in constitution, liable to mildew, Phylloxera and other diseases, but when grafted on strong kinds are enabled to resist these diseases.

EDITORIAL NOTES.

THE "COTTONY CUSHION" SCALE.—California seems destined to be the Paradise of emigrant insects as well as of fruits. The most recent trouble is with an Australian insect, under the name given above.

THE PEACH WORM.—Prof. Maynard, of the Massachusetts Agricultural College, believes that much of the failure of the peach in New England comes from want of care in keeping out the peach borer, which works in the collar near the ground. No doubt much that is attributed to the yellows should be credited to the peach worm.

PLUM CULTURE.—At a recent meeting of the Massachusetts Horticultural Society a member said that Ellwanger & Barry, of Rochester, N. Y., have a plum orchard of half an acre or more, and from the time of flowering until the 20th of June it is the whole business of one man to attend to

them, jarring—not shaking—down the curculios. If planted in the hen yard there will be no trouble from curculios.

This is all right so far as the jarring goes. The trees must be jarred suddenly, and the insects collected on the sheets on which they fall. But the chicken yard idea will not do. The writer of this enclosed a plum plantation expressly as a chicken yard, and for several years did not get a solitary plum. Then various suggestions made by eminent men were tried in addition to the chickens, but still no good. The last three years he has resorted to jarring, and has now all the plums he desires.

SOIL FOR RASPBERRIES.—Says Mr. N. Ohmer: "To grow raspberries successfully, you must select good soil, well underdrained; let it be clay loam or sandy soil, but prefer upland clay loam. I have known them to do admirably in almost any soil, provided it is rich and not wet. Plow as you would for any other crop, the deeper the better if your soil admits of it. Harrow well; plow out furrows six or seven feet apart, and plant in said rows three feet apart—a partial shade I find to advantage. My patches that do best are in an old orchard."

PARIS GREEN FOR THE CODLING MOTH.—President Saunders remarks: "Within the past two or three years Paris green mixed with water in the proportion of a teaspoonful to a pailful of water has been recommended as a remedy for the codling moth, the mixture being freely applied to the apple trees with a syringe or force-pump soon after the fruit is set. In my own experiments where the mixture was applied to alternate trees, the proportion of wormy fruit in some instances on the trees syringed seemed to be nearly the same as on the adjoining trees which were not treated, the fruit on both being less wormy than usual, while in other instances there was a very unusual freedom from the apple worm. Other experimenters claim far more decided results."

CULTURE OF THE DANDELION.—By the following remarks before the Massachusetts Horticultural Society by Mr. Wm. D. Philbrick, it appears that dandelion as a salad is growing in popularity in America:

"When the cultivation of the dandelion was first undertaken, the attempt created considerable merriment, but now they are grown in large quantities. Almost any garden soil is suited to their culture, but they are gross feeders, and will take a large quantity of manure. They are sometimes planted on a warm slope for an early crop, and on a cooler exposure for a later, and under the shade of apple trees for still later. It is very important to have fresh seed, as it loses its vitality in two or three years. Market gardeners generally raise their own seed. The ground must be made very fine, as the seed is very small and apt to dry up, especially if planted late, and it must not be sown too deep. It is found better to plant anew every year, as the crop the second year is not of as good quality as that of the first. In the field the cutting begins in April, before the plants are half-grown, as they bring a better price then; early in May they come in so freely as hardly to pay for marketing. The dandelion is easily forced; one way is to dig up selected plants in autumn and set in frames, but sometimes it is planted in houses, though the frame is most generally used. When first cultivated, the seed was saved from the largest and finest native plants, but there are several French varieties which are superior to these, and these French kinds have been improved by careful selection."

GATHERING RASPBERRIES FOR MARKET.—This is the secret as told in confidence to the Montgomery Co. (Ohio) Horticultural Society by Mr. Ohmer:

"I have often been asked how I manage the many hands necessary to pick my berries, to have the job well done, and to have them continue to the end. First, I live near a large city, Dayton, Ohio, (too near to save a large part of my apples and pears) and can get all the pickers I need, and my system is as follows. I use a stand with handle, holding four quart baskets to pick into. Each picker is given a stand and a basket holder, which holds one quart basket. This holder is tied around the waist, enabling the women, girls and boys to use both hands in picking. Thus equipped, they are put two to a row, one on each side. I have a trusty man to be with them continually, his business being first to see that they pick none but ripe fruit; second, that they pick all that are ripe; third, that they do not damage the berries, nor canes; fourth, that they do not skip rows, or parts of rows; fifth, that there is no rasling in the patch. When the stand has four full quarts, they are brought to where the packing is done, in the shade of one or more trees. Then give them a check for the full stand, and an empty stand filled with baskets to fill again, and so on till the day is over. I have large printed checks good for ten, twenty and thirty checks, which I give in exchange for smaller checks when desired.

"I pay no one money on account, or in full, until the last picking is over, except in case of sickness or other good cause. By adopting this method my hands continue their work until the last picking is over. When pay day comes all are made aware of it, all come, and when we are through with the last picking, all hands collect in the shade and are paid off in full, after which I give them a treat of cider, lemonade and cakes; all have a good time, and go away more happy than many worth their millions."

SCRAPS AND QUERIES.

STABLE MANURE.—Notwithstanding the teachings of many excellent persons that stable manure is the most costly of all fertilizers, it is to-day the most popular of all. Possibly it is one of those cases in which incidental advantages outweigh direct ones—in popular parlance, a case where the "longest way round is the shortest way there." Horses and men are often in need of something to do, and they can be put to work at manure hauling when there is nothing else needed. Again, the lightening of the soil by the decay of vegetable matter is a gain. In short, the value of manure is not wholly a question of chemistry.

COAL TAR.—"O. E.," Philadelphia, says: "'At a recent meeting of the Montgomery county, O., Society, Mr. H. C. Smith stated that pitch tar was found to be more dangerous than coal tar to keep insects from injuring the bark of trees. This is very important information, as the general belief has been the reverse.' This is from the GARDENERS' MONTHLY, March, 1882, but it does not elucidate the matter clearly. Can you throw more light on it?"

[We called attention to the matter at the time merely as information, but have learned nothing further since. It was at one time recommended that a little coal tar should be painted around fruit trees at the collar, as a sure means of keeping out borers and preventing mice and rabbits from barking them. We had seen coal tar so employed serving the purpose admirably, and not injuring the trees in the slightest degree. Then came reports that trees had been injured, and it was surmised that some coal tar had too much creosote in it, which is known to be injurious to vegetation, and it was believed that pine tar would be free from this objection. It would be well worth while for any who may have had experience to tell what they know about it. There have been some very successful experiments of late made by using tar water against green fly and other insects, but we do not know anything from our own experience. Tar in most of its forms is liable to be injurious to vegetation, but in skilful hands it ought to be of very great value.—Ed. G. M.]

POTASH FOR PEACHES WITH YELLOWS.—"Burt" wants to know if he understands the GARDENERS' MONTHLY to teach that it is because of the exhaustion of potash in the soil, that peaches have the disease known as the yellows? We do not know how this correspondent got such an idea that the GARDENERS' MONTHLY "teaches" any such doctrine. Our magazine may have given simply as an item of news that some investigators have come to some such conclusion; but the GARDENERS' MONTHLY knows very well that in feldspathic soils, which contain an inexhaustible supply of potash, the disease is as prevalent as in any other soils. Our correspondents must learn to distinguish mere "news" from "teachings."

THE BRIGHTWATER APPLE.—"J. B. G.," Springdale, Arkansas, March 8th, writes: "I send you by to-day's mail two 'Brightwater' apples, a new seedling from Benton county, this State. They are not up to the average in either size or color, and have been frozen hard several times the past winter. The original tree is about thirty years old, measures about 20 inches in diameter, 18 inches above the ground; is in a thrifty condition and has not failed to bear a fair crop for the past ten years, although we have had several total failures. I am assured by the party who sent them to me that they will keep until July. Please test one now and give your opinion of it, and see how long you can keep the other."

[This excellent apple came to hand in the middle of March. The beginning of May the other was eaten and found to be in very good condition. It would have kept longer. It is certainly a very desirable apple for that far down section of the country.—Ed. G. M.]

FORCED STRAWBERRIES.—The strawberries forced by Mr. Paget, gardener to Senator Cameron, at Harrisburg, were again a source of wonder to those who beheld them. The plants were in full bearing all through March, and had from fourteen to nineteen magnificent large ripe berries on at one time. Aside from the merit of having choice fruit like this ahead of even what Florida can send us at that early season, is the great beauty which a strawberry house affords.

HARDINESS OF THE SPANISH CHESTNUT.—"F. G." says: "I see that a correspondent from Buffalo, New York, says that the Spanish chestnut is not hardy there, as he imported a few plants and for two successive seasons they were killed. Even here I have found young plants killed to the ground for one or even two seasons till they make a strong tap root, after that the shoot which it pushes up is as hardy as any tree can be. I have a notion that it would be quite as hardy at Buffalo as at Philadelphia."

FORESTRY.

COMMUNICATIONS.

TIMBER ON THE PRAIRIES.

BY N. D.

In the *Evening Star* (Philadelphia) of this date, you are quoted under the heading of "The Treeless Prairies," as accounting for this condition. Having resided a number of years in the far West, I would state that the theory advanced is generally accepted there as the cause of the treeless condition. You have, I think, traveled in the West, and if so, you will have observed that along all the river courses, except perhaps near their headwaters, where the streams are necessarily small, timber is to be found, also about rocky points. As streams and rocks do not feed fires, this accounts for the existence of trees in such locations. In addition, these places were selected for the habitations of the Indians and early settlers, and hence every precaution was taken to protect themselves, and, as a consequence, the timber had a show. In this connection, it is also worthy of remark that the black soil is in great part due to these annual burnings. The white settlers do the same, it gives them much earlier and better pasturage than is afforded when the previous year's growth remains. Trees of naturally rapid growth do not thrive well on the virgin prairie soil, for the reason that the growth of the wood is so rapid and so full of sap that it is winter or spring killed. For a similar reason, wheat could not be successfully grown on the Kansas prairies on its first or early trials, it grew too rank and amounted to nothing; that is now changed, and wheat is a successful crop; so of fruit trees, and I think trees generally. Of later years, I can only speak of report, not having resided there for many years. Tree seeds would not sprout, as the virgin prairie is now constituted, or if they did, could find no soil, as the prarie sod becomes very thick and firm. To show how readily seeds grow, I may state that I have seen fields that lay fallow for several years that had become literally covered with young trees of the poplar variety, "aspens."

The cottonwoods grow wonderfully rapid and large, and are largely planted for protection in the northern prairie regions, and without such protection it is next to impossible to start and keep alive fruit trees in the northern latitudes, on account of the high winds and excessive cold. The time will come when Kansas will have as much as most of the old timber States—not in such large bodies, perhaps, but in a uniform, methodical distribution.

Philadelphia, April 9, 1884.

[As our readers know, we usually give the views of our correspondents as received, without comment, except where an error uncorrected might lead to trouble. In this case there is much with which we could not wholly agree.

Trees along water courses over treeless prairies, we have always thought get there from the seeds of trees being carried along by the streams since the Indian prairie fires ceased. We have traveled extensively over the regions in question, and never saw any aged specimens along these river lines.—Ed. G. M.]

HICKORIES, CHESTNUTS AND MADERIA NUTS.

BY J. R. TRUMPY.

There is no reason why these trees should not be made a profitable enterprise for an enterprising man. True, as far as the hickory is concerned, it would require a large souled man, as it would be doubtful whether he would realize the fruits of his investment during his lifetime; but his descendants would, and also the community. To come to the point at once; some years ago, Mr. Hales, of Ridgewood, New Jersey, requested us to try to graft a superior shellbark hickory, grown on his ground. After having worked at it in a very desultory way for several years, I requested the company to give it up, as it did not pay us to do it except on a large scale, this not being possible with us, having so many other things on hand. There can be no doubt that by grafting superior kinds of soft-shell hickories, especially if they are prolific bearers at the same time, it will bring them earlier to bear than if raised from nuts, of which at the best you do not know what you will get after long waiting. Hence, say that grafted hickories, two years old, bought at a dollar each, plants twenty feet apart each way, say about forty trees to the acre, would after some years not cost much to take care of, as it is not

necessary to have level land, but the very land not easy for ploughing other crops. Now for chestnuts, things are much easier than with hickories. After all is said about the large-fruited Spanish or Japan chestnut, the American chestnut is by far the sweetest of all, and no doubt large-fruited trees can be found which when grafted will bear in a short time. Some years ago I grafted Japan chestnuts on the American; the second year they were full of chestnuts. Of course they were grafted on good strong stocks, about five feet high. Again, the same thing may be done with Juglans Regia or Maderia nut, grafted from some prolific tree that will bear the most perfect nuts, and no doubt they will do very well in a great many situations, and be a very paying remuneration.

THE SPANISH CHESTNUT.

BY CHARLES E. PARNELL.

In a recent issue of the MONTHLY, I notice a few notes relative to the Spanish chestnut, and it occurred to me that a few notes giving my experience would prove to be of interest to many. At this place, Oatlands, we have perhaps one of the finest specimens to be found in the country. It measures thirteen feet nine inches in circumference, and is from sixty-five to seventy feet in height, with wide spreading branches. It commences to branch some fifteen feet from the ground, the branches extending over thirty-five feet from the trunk. As they are symmetrically produced, and extend equally in all directions, it forms as perfect a specimen as one would wish to see, and when in bloom presents a beautiful appearance—one worth coming a considerable distance to see. It produces an abundant crop of nuts every other year, but, unfortunately, they are so infested with worms as to render the greater portion worthless. The nuts are much larger than those of our native variety, but, in my opinion, quite inferior in quality, as they do not possess that sweet, nutty flavor of our natives. For cooking purposes, however, they would be far superior could they be obtained free from insect life.

The Spanish chestnut, however, is an excellent ornamental shade tree for the lawn, both on account of its rapid, handsome, symmetrical growth, and its freedom from insect pests, and, as a proof of its rapid growth, I may mention that some nuts planted in the fall of 1875 produced trees that are now some twenty-five feet in height, and which fruited freely last season. It is claimed by some that this chestnut is rather tender in many situations when young. It may be, in very exposed situations, but not in others, for it is my opinion that if small trees of this chestnut were properly planted and cared for, it would be found to be perfectly hardy in many situations where it is now considered as tender. *Queens, N. Y.*

EDITORIAL NOTES.

THE ENGLISH OAK AS AN AMERICAN TIMBER TREE.—It takes a long while for a good idea to take root. In 1871, when passing through the then young settlement of Greely, Colorado, the Editor of this magazine was called on to address the settlers on their needs, and amongst other things it was pointed out that the English Oak, having a remarkably deep tap root, would be just the tree to resist summer drouths, and to succeed in the dryer regions of our country wherever the winter atmosphere would not be too cold-dry to kill it. Only now do we see any sign of profit from this suggestion, and that not in Colorado but in California. The all-alive Professor Hilgard has found its growth remarkable under the most trying circumstances, and its value as a timber tree for the State almost beyond all doubt. We learn from the *Pacific Rural Press*, that he has managed to distribute seeds for general trial throughout the State.

SUGAR FROM THE YELLOW-WOOD.—The *Rural New Yorker* says: "For the third year we have gathered the sap of the Yellow-wood (the Cladrastis tinctoria, or Virgilia lutea of botanies) and boiled it down to sugar. The sap will flow earlier, in larger quantities, and continue later from the Yellow-wood than from the maples, and, as we believe, will give more sugar. The *Rural* people, all of whom have eaten this sugar, say that in quality it is as rich and buttery as maple sugar. Of course, it does not possess the peculiar maple flavor, but, instead of it, an acid flavor resembling sweet lemonade, quite agreeable to most of those who ate it. In texture and color it closely resembles the finest maple sugar. We are in hopes that our experiments with this American tree will lead others to follow our example on a larger scale."

[The Yellow-wood bleeds from winter wounds more profusely than from any tree we know, and we have seen icicles over a foot long from some of these wounds in early spring. In freezing, whatever is held in solution in water is rejected, and in sugar-bearing liquids the sweets are always concentrated on the end of these icicles. From

some on the Yellow-wood icicles we found an abundance of sugar, last spring, just as the observant editor of the *Rural* notes.—Ed. G. M.]

THE NUT PINE OF THE ROCKY MOUNTAINS AND CALIFORNIA.—The Nut pine is Pinus edulis, and is the poorest of its class, the timber being worthless, even for wood, and the crop of nuts small. They are, however, pleasant to the taste, nutritious and wholesome, and a great favorite with the Indians of the Sierra Nevada, where the tree most abounds. On the steep hill sides they place a log across the hill under the trees just as the cones open, then whip the trees, the nuts rolling down towards the log where they are easily gathered up.

FATE OF A FAMOUS HONEY LOCUST TREE.—The *Garden* says: "The most famous tree in Paris is about to disappear—viz., the Février or Gleditschia of the National Library. It is believed to have been planted as a tree of liberty in 1789, and was the gift of the English botanist, Catesby. In 1859 on the erection of the new reading room it had to be removed 50 yards to the court of the library, a difficult task, for it was 60 feet high, and the expense came to £320. The court after the enlargement of the library is about to be paved, and the tree is to be felled."

WALNUTS IN CALIFORNIA.—A correspondent says: "The native walnut of Southern California is inferior, both as a nut and a timber tree, but the so-called English walnut is quite likely to flourish where the native tree grows. The walnut is very profitable when planted under suitable circumstances. Walnut orchards in Santa Barbara and Ventura, but ten years old, are yielding an annual profit of $10 to the tree. They require a deep, rich, warm soil, such as is suitable for corn."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

BOTANICAL NOTES FROM CHEW'S LANDING, N. J.

BY J. F. CLARK.

On April 19th I made a trip to Chew's Landing, Camden County, N. J., which is about seven miles from Camden. In company with Mr. P. H., I took a walk to "Pine Creek," which flows through that section of the country, and empties into the Delaware. It is also influenced by the tide. My attention was attracted by a beautiful yellow flower, on the opposite side of the creek. The sun was just setting, and the soft rays beamed through the dormant shrubs on the flowers which were half hidden amongst them. I was naturally anxious to find out what it might be; but as the creek at this point is about twenty or thirty feet wide and quite deep, how to reach my object was a puzzle. We walked along the creek some distance, hoping to find a suitable crossing place, without finding any. We were about to give up, when, on our return, we discovered a rude boat, made fast by a chain and padlock to a cedar tree. After some hard work, we succeeded in getting the lock undone. My friend Mr. H. improvised a fence rail for an oar, and pushed right and left until we reached the opposite bank. We fastened our boat and waded through six inches of mud and water, until we reached our treasure, which proved to be a splendid specimen of the marsh marigold, Caltha palustris. I felt rewarded, however, as my plant had over forty fully expanded flowers. I have not seen it for about eleven years, and then only a small piece. Mr. Josiah Hoopes and I found it about two miles north of West Chester, Pa. The flower I have added to my little herbarium. This plant may be common to many older botanists in their days, but like the Obolaria, and, I might have added, many others, it seems to be gradually disappearing. In some parts of Germany, the leaves of the Caltha are used as greens. There it is known by the name of Sumpf dotter blume. Sumpf, swamp; dotter, from the yolk of an egg. *Laurel Hill, Philadelphia.*

[Caltha palustris is occasionally found along the small streams which flow into the Wissahickon, near Philadelphia. It is singular that it does not spread more, seeing that it is at least able to maintain its ground, but we do not think it is any more

abundant now in the cited localities, than it was twenty years ago. As our correspondent suggests, there is evidently something that is not clear, operating against its distribution these latter times. —Ed. G. M.]

HABITS OF BIRDS.

BY PROF. GEORGE G. GROFF.

A few months ago, I noticed some observations on the tameness of wild birds in the West. The following facts came under my notice in 1872, in Minnesota and Dakota. In the vicinity of St. Paul, prairie chickens were exceedingly wild, so that an inexperienced marksman could with difficulty secure a shot; but in northern Minnesota I saw one brood, the hen and half-grown chicks, which were so tame that I could scarcely frighten them out of my way with clods, etc. In the southern part of the State blackbirds and ducks always seemed wild, but in the far northern part of the State they were very tame, and could easily be approached and shot. I observed the same thing with several species of hawk, which in Pennsylvania are generally so wild. At Glyndon, on the Northern Pacific Railroad, I saw cow-blackbirds ranged along the back of a mule, which was tethered in front of the frontier hotel, for a whole day. I may remark, also, of that country, that I have never seen insects and small snakes so abundant in any part of the United States as in northern Minnesota and Dakota in 1872, and I do not think any part of the country can produce larger mosquitoes than that region. *Lewisburg, Pa.*

NEW SPECIES IN CARYOPHYLLACEÆ TRIBE.

BY JEAN SISLEY.

The celebrated Carl Vogt, in one of his public lectures, as president of the National Institute of Geneva, in 1869, said: "No one, in Europe at least, dares to affirm the independent and spontaneous creation of species." This means, for all those who have reflected about the origin of all living beings, that they are all Hybrids, and the consequence of natural and successful crossings. But nature, having eternity before and behind her, has been and is still slow in her proceedings; and as the human race, most likely, was not the first to appear on our little globe, and that also most probably its mental faculties were very slowly developed, it is not astonishing that we should know so little about the origin of all living beings, as well in the vegetable as in the animal kingdom. A new proof of the rectitude of Carl Vogt's assertion, has lately sprung up in the vegetable kingdom. A new Perpetual Hybrid has been created by Alphonse Aligatiere, of Lyons. He has crossed Dianthus plumarius (pink) by Dianthus Caryophyllus (Perpetual carnation), and had tried the artificial fecundation of both for five consecutive years without success. Still he persevered, and in 1881 he obtained from 1,500 artificial fecundations, one single seed pod containing three seeds, one of which germinated and produced a Hybrid, which is a perpetual bloomer, and named it Mignardis, 1881 (Dianthus plumarius), and from it, by continued artificial fecundation, he has lately obtained ten varieties, all very different, and perpetual bloomers. He has thus created what is commonly called a species. These ten varieties are all, for amateurs, a splendid acquisition to replace the old pinks as border plants, having over these the advantage of being constantly in bloom, and also for bedding purposes, by their varieties of colors and growths. They must not only interest all those who love flowers, but also all those who reflect and study the contingencies of the laws of nature. *Monplaisir, Lyons, March 29, 1884.*

FLORAL MONSTROSITIES.

BY ERNEST WALKER.

Last winter I observed an uncommon oddity, or floral monstrosity, in the form of a calla lily, with two separate blooms on one stalk. We have read accounts of "double callas," or "calla in a calla," but this was a case of one stalk bearing two individual flowers. The main flower stalk supported a spathe the same as the ordinary calla, but without the spadix, the lateral flower stalk bearing a perfect flower, but smaller, and divided from the main peduncle about midway, and pushed out of the side, the same as the ordinary flower stem pushes from the foot stalk of the leaf.

While speaking of these freaks of nature, quite a number of the geraniums in the greenhouses have manifested the tendency to bloom in much the same manner as the rose monstrosity which Mr. Peter Henderson describes, and which, by the way, I have also witnessed, not in the General Jacqueminot rose, however, but in the Louis Phillippe, which one season furnished a number of such specimens. Quite a number of the geraniums referred to have produced flower stalks bearing both flowers and leaves partaking in part of the nature of both branch and peduncle. This ten-

dency seems permanent in one variety, a single-flowering sport from geranium Wonderful, every bloom stalk of which manifests this character. Out of such trusses of bloom I have observed one, two, and sometimes three, smaller, short-stemmed trusses, and frequently all with flowers open at the same time. *New Albany, Indiana.*

[The curious departure in the calla or Richardia Æthiopica, has been common this year. Some score of cases have been brought to our attention. We have never seen such cases until this season. In botanical language, a large, white bract, just like the ordinary spathe or "flower," appears about four or six inches below the normal flower, which is smaller than usual. We have been much interested in it, as it throws light on some other curious questions connected with botanical studies.—Ed. G. M.]

EDITORIAL NOTES.

ROSA POLYANTHA.—Many supposed species of roses now prove to be but varieties of others. A correspondent of the *Journal des Roses* shows that the Rosa polyantha, of Siebold and Zuccarini, is only a single-flowered form of Rosa multiflora, described by Thunberg in his *Flora Japonica.*

THE NEW SOUTH AMERICAN POTATOES.—M. Carriere, in a recent issue of the *Revue Horticole,* says that he is not yet fully satisfied that his new La Plata potato, which he named Solanum Ohrondii, is the same as the old S. Commersoni, as recently determined by Mr. Baker. He also believes that the kinds brought into prominent notice recently by Mr. Lemmon, are distinct from the La Plata kind.

BEES AND CLOVER.—Though the humble-bee has not been introduced to New Zealand, Mr. Armstrong, of the Christ Church Botanical Garden, asserts that the red clover seeds freely in many cases. The honey-bee's tongue is too short to reach the nectar at the base of the long tube; and, moreover, he says he finds no nectar in clover flowers when more generous ones are in bloom; and he adds: "I am confirmed in this opinion by a remark of Mr. Meehan (an excellent American authority on fertilization), who observed that humble-bees would not visit a field of red clover when the white clover was in blossom; and yet the red clover fields bore seeds as freely as most insect-frequented fields would do." This New Zealand observer notes that in that country, there are different races; some infertile, and others abundantly productive. As we now know that it is the check to vegetative vigor, following the first mowing, which gives the strong reproductive tendency to the second crop of clover in our country, the productiveness or sterility of these different races will, no doubt, have to be looked for in their relative vegetative vigor.—*Independent.*

SCRAPS AND QUERIES.

MICHAUX.—"J. W., Jr.," Sewickley, Pa., says: "Your Charleston correspondent (page 157, May number) may be interested to know these items gathered from Michaux's "Travels to the Westward of the Allegany Mountains in the States of the Ohio, Kentucky and Tennessee, and Return to Charleston through the Upper Carolinas; * * * Undertaken in the year X (1802) * * * by F. A. Michaux, M.D." Translated from the original French by B. Lambert. London: 1805. I omit a portion of the rather long title.

"Dr. Michaux sailed from Bordeaux, on his second visit to this country, in September, 1801, arriving in Charleston October 9th, 1801. In the following spring he went to New York, thence to Philadelphia, and thence, on June 9th, 1802, he started West, via Shippensburg, Pittsburg, Wheeling, Marietta, &c.

"The book, 350 pp., 8vo, is full of interesting information, not only pertaining to his special study, botany, but to the inhabitants of the country—their manner of living and modes of travel. The closing statement made by the author dispels the idea that he died in Madagascar in 1802. He says: 'I remained in Carolina until March 1st, 1803, at which time I embarked for France.'"

We have also the following note from a Charleston correspondent: "André Michaux's Botanic Garden was situated on the Ashley River, ten miles from Charleston, S. C. It is entirely destroyed. There is, however, a rumor that when the Drayton and Middleton places were established the rare plants and trees were removed from the Botanic Garden and planted elsewhere, the gardens being then deserted and gone to ruin. In the year 1808 the Drayton garden, also on the banks of the Ashley, was rich with native shrubs and trees, collected by Mr. Charles Drayton. Viburnums and Gardenias grew there in grand luxuriance. The old Drayton Hall is now almost in ruins, and phosphate companies have dug deep valleys and high hills where the gardens used to be, though some beautiful trees still remain. The

Magnolia Gardens, which the Rev. Mr. Drayton cultivates with most loving care, adjoin Drayton Hall. For over thirty years the present occupant has continued the work begun by his father, and certainly it must be acknowledged that throughout the length and breadth of this great country a more exquisitely beautiful growth of Azaleas, Camellias and Magnolias cannot be found."

And "A. G.," Cambridge, Mass., remarks: "Your correspondent, on page 157, says that 'after publishing a botanical work in America, Michaux returned to France, where he published another book.' You might have corrected that."

[As a general rule we let our correspondents have their say—preferring, when corrections are necessary, to let them come from other pens than ours. In this way we, as well as our readers, often learn things neither of us might have known if the Editor took on himself the office of monitor on every occasion. Perhaps it would have been well if we had departed from this rule in the case of the reference to Michaux, quoted from "Ramsay's History."

It should not be forgotten that there were two Michaux's—André the father, and Francois André the son. The father travelled through the Atlantic States during the period between 1785 and 1796. It was he who established the Charleston Botanic Garden. In 1801 his "Oaks of North America" was published in Paris. In 1803 the "Flora of North America," by him, was also issued in Paris. He is said to have died in Madagascar in 1802. This work, published under his name, is said however to have been prepared by Richard. There is nothing in the work to indicate that it was issued after Michaux's death, or by any other than himself. Even the preface is signed by his name.

F. A. Michaux, the son, visited Charleston in 1802, and was there in 1803, and the work referred to by "J. W." gives the account of his wanderings. In 1810 he issued his "North American Sylva," building evidently on his father's work on the oaks.—Ed. G. M.]

A Twin Fuchsia.—Williams Brothers, Sharon, Pa., write: "We send you to-day a flower of the old fuchsia, Mrs. Marshall, which is double, thinking it might interest you. This is the first thing of the kind that has come to our notice."

[This is a twin—not a double fuchsia in the usual sense. The fuchsia normally has four sepals, four petals and eight stamens. It may be worth noting that these flowers seemed each quite perfect, but united. Yet an examination showed that there were but six stamens in each flower, and but three sepals and three petals.—Ed. G. M.]

Absence of Timber on the Prairies.—N. D., Philadelphia, sends a paper on the cause of the absence of trees from our grassy prairies; but there is no need of a further discussion of this subject, as the reason has been amply demonstrated. Whatever can mature seed during a single season, can spread and has spread. Such plants, indeed, formed the vegetation of the grassy prairies. Whatever required to grow up five, ten or fifteen years before producing seeds, could not spread if cut to the ground every year or two, and before producing seeds. A prairie fire would do this. There have been prairie fires, annually, from time ante-dating our history. Trees, therefore, could not seed, and could not spread. They have spread along the streams because water carries the seeds along the streams from unburned districts. This is the sum of a paper by Mr. Meehan in the Proceedings of the Academy of Natural Sciences of Philadelphia, several years ago, and, unless these facts are disputed, there seems no reason to go over the matter at great length again.

Literature. Travels and Personal Notes.

COMMUNICATIONS.

RECOLLECTIONS OF OTHER DAYS.

BY WM. T. HARDING.

Some five and twenty years ago, when looking over Rosedale Nursery, the late Mr. Robert Buist thus addressed the writer: "Did you ever see this plant, Brownea grandiceps, in bloom? And there is another one, about as seldom seen in that condition as any I know of," pointing to a Bugin-villea spectabilis. To my affirmative reply, he tersely and emphatically remarked: "Then, indeed, you have seen two remarkable sights, very rare and very grand." And, continuing, admitted: "I have never seen either of them in a flowering

state, except here, and when under the care of Mr. John Pollock, at Mr. Dundas', of Philadelphia."

"Once upon a time," when a much younger man than now, when attending to some matters of business, I found myself in the presence of that successful and eminent man, the late Mr. Knight, of the celebrated King's Road Nursery, Chelsea, London. And as the venerable and intelligent proprietor conducted me through the extensive range of plant houses, all the while pouring into my ears a flood of varied information, he abruptly paused before two good specimens of the above named plants, which surprised and delighted me with their novelty and beauty. While thus standing, wonder-struck with admiration, Mr. Knight pleasantly observed: "Young man, before you is a sight ever to be remembered."

In years after this casual incident, when Mr. Knight had gone the way of all flesh, and thousands of miles of the billowy deep rolled between the quick and the dead, I again met with the above named plants at Mauritius, profusely blooming. On that beautiful isle in the Indian Ocean, made memorable by the facile pen of Bernadine de St. Pierre, which absolutely seemed to revel in floral magnificence, while tropical tides gently lave the palm-shaded shore, and where "old Sol" from cloudless skies beams bright and warm over land and sea, was of all other places, probably, the most delightful spot in the universe, in which I should meet them again.

Having meandered along flowery paths and paradisical avenues around Port Louis, up to the Hotel, Paul et Virginie, I sat down for awhile in an adjacent arbor, which was occupied with a good-looking, sunburnt gentleman. who, from appearances, I took to be some fortunate islander who had drawn a high prize in the lottery of life. The unobtrusive stranger sat watching with evident delight the droll antics and gambols of a tame lemur. And the gentle little creature seemed to enjoy the kind attention of the noble and gentle man, with whom it seemed to be on familiar terms. With thoughts deeply absorbed with the lavish charms of nature, which everywhere seemed Edenic, I noticed such a blending of beauty overhanging the lattice above, as is seldom seen elsewhere. For a moment, forgetting the bon homme by my side, and "thinking aloud," as a long festoon of lovely orange-colored leguminous flowers touched my face, ejaculated: "Jonesia scandens, I declare!" The sudden exclamation seemed to immediately evoke from the diffident though observant gentleman, the ready rejoinder, while pointing upwards: "Yes; and Brownea grandiceps, B. racemosa, Tacsonia pedunculata, and the no less glorious Buginvillea spectabilis, and Euphorbia splendens. Neither do the other beauties, Passiflora quadrangularis, P. picturata, Stephonotis floribunda, Bignonia venusta, B. crucigera, and Rajania quinquifolia, lose any of their magnificence from the close proximity of such brilliant company." Naturally surprised, as well I might be, with the unexpected remarks just made by one whose knowledge I wondered at, and while he lapsed into silence again, fancied the words of Mr. Knight, whom I listened to years ago, were still audible, and seemed to say: "Young man, before you is a sight ever to be remembered." To see the rare and lovely Jonesia scandens (a plant so seldom seen), seemed to awaken happy memories of other lands; especially where princely Chatsworth quietly nestles among the green hills and dales of Derbyshire, where it was grown in all its glory by the world-renowned Sir Joseph Paxson. Reminiscences of Regent's Park Botanic Garden, London, and the skilful curator, Mr. Marnock, seemed to come up again, at the sight of the beautiful climbers, like fleeting visions from the realms of the shadowy past. The supposed foreigner, who sat with his back leaning against the tall shaft of a handsome palm, Latania borbonica, which formed the living centre-pole of the vine-covered arbor, proved to be no other than the noted Mr. Duncan, Director of the Royal Botanic Gardens of Pamplemouses. These interesting grounds contain the oldest botanic garden in the tropics. Presuming it is needless to relate how readily the talismanic influence of philo-flora made us acquainted with each other, and, to avoid reiteration of the pleasant time I spent with that genial gentleman, I must refer the reader to the August number of the MONTHLY of 1875.

True, the only plants here referred to are all of climbing habits, with one exception. Yet, how much I regret the absence of them, and others of the like or kindred nature, in the hothouses of to-day. Somehow, there seems to be a void in the ranks of rare floral beauty once so conspicuous with the elite and regal representatives of "Flora," from all parts of her extensive domains. It is sad indeed to mark the decadence of taste and admiration for so many fair flowers, whose possession used to be the pride and delight of the wealthy and cultured people of this and other lands. And when we think of them being crowded out with the cheap and common stuff, which usurp their proper places, makes the case more grievous still. Admitting that

most plants and flowers are pretty and interesting, there are, nevertheless, well marked grades of ligneous and herbaceous beauty in the vegetable kingdom, from which we may happily choose the fairest of the fair to satisfy our yearnings and admiration for the beautiful. Of the lovely, though often fantastically formed Orchidea, there are a few tolerably good collections about, while the exquisite loveliness of Cape Ericas, and other such like choice things, are seldom seen. The generality of Australian plants, whose habits are as remarkable as they are beautiful, and withal are easily managed, would prove as satisfactory to the grower, as the editor often remarks, when recommending good and pretty things to his readers. Such a galaxy of floral loveliness would compel the most saturnine looker-on to pause and think of his Creator, and thus make the cold-blooded cynic to marvel at His wonderful ways. And the appreciative connoisseur, the sage, and æsthetic admirer, will highly enjoy the serene happiness which naturally springs from the sight of beautiful flowers. When confronted with a bevy of such brilliant examples of plant life, where leaf and flower grandeur magnificently mingle in the glorious habiliments with which nature has adorned them, the graphic language of my old friend, the late Mr. Knight, slightly paraphrased, will naturally find expression in similar words: "Good gracious! before me is 'a sight ever to be remembered.'"

Mount Holly, N. J., May 1, 1884.

[It is curious how we accidentally meet sympathetic friends in the most unexpected places sometimes. Many miles from home, on one occasion, we saw a gentleman whose mind was evidently gone a wool gathering, sketching, mechanically, a Fuchsia on a piece of paper at the same time. The writer remarked, "not six stamens, but eight." It led to the discovery that the stranger was an eminent gentleman of whom we had often heard but never seen.—Ed. G. M.]

A VISIT TO THE GREENHOUSES OF CHAS. F. EVANS.

BY E. L.

It will surprise those who have paid a visit to the greenhouses of Mr. Evans, to learn that Mr. Bennett removes the plants of the Bennett rose from the greenhouse, in the spring, to frames in the open air! because at Rowlandville, since the rose has been in bloom, no visitors have been allowed inside the houses where it is flowering. In other houses where young plants are growing in pots, visitors are not excluded. So that it is clearly not because they are afraid of plants being stolen, for it is easier to take a plant in a thumb pot than one three feet high growing in a bed.

Last autumn Mr. Evans predicted that the days of General Jacqueminot were numbered, for he expected that the ever-blooming Bennett would annihilate the "Jacque," and a respectable fortune would be result. Neither the prediction nor the expectation has been verified. Jacques have been somewhat cheaper than usual this season, but the Bennett has had no influence on the price. When it will be sold with its own stems and leaves, it may command good prices, in the early part of the season, before Jacques come in good; but the latter will always hold its own at higher figures as the season advances. The Bennett is far superior to anything we have had before in its line of color, which includes Douglass, Duchess of Edinburg, and last, and least, André Schwartz. Whenever the latter variety is mentioned to a florist who has given it a trial, it invariably provokes a smile, excepting, perchance, where the investment involved several dollars; then the subject is better avoided. To return to the Bennett; for a while no attempt was made to propagate it in any quantity, but since it has not proven such a bonanza in the sale of the buds as was expected through the clause forbidding leaf buds to go with flowers, a stock is being worked up as rapidly as possible, Mr. Evans hoping to gain the permission of Mr. Bennett to put the plants on the market at a much earlier date than the contract calls for.

EDITORIAL NOTES.

JERUSALEM ARTICHOKE.—Canon Ellacomb, very good authority, says the prevalent idea that Jerusalem Artichoke is from the Italian "Girasole"—turning with the sun—*i. e.*, "Sunflower," is nothing more than a clever guess. He says the Italians do not call the plant Girasole, but Carciofo. There are other plants with the prefix Jerusalem, *i. e.*, Jerusalem Sage, Jerusalem Oak, Jerusalem Thorn, Jerusalem Cowslip, &c, none of which ever came from Jerusalem. And if we would know why this plant is called Jerusalem Artichoke, we must look back through the centuries and find out why the name Jerusalem was given to such things as these. There was probably a meaning, but the meaning has been lost.

HAPPY AS AN OWL IN AN IVY BUSH.—Travelers to Europe from America go into ecstacies over the ivy-covered walls of English homes, and many

would give a good deal would the ivy cover houses as well here as there. But Dr. Bromfield, a genial English botanist of nearly half a century ago, did not think there was much to be proud of in such a green vestiture. Says he: "In this country we sometimes see houses completely embowered in ivy, which is said to keep the walls dry. To myself, I own the plant has something gloomy and repulsive when clinging artificially to habitable buildings, though beautiful and appropriate as the spontaneous vestiture of the ruined wall, craggy steep, or hollow tree. To live like an owl in an ivy bush is a way of passing existence I should beg to decline sharing with those respectable birds, or with the admirers of the sort of domicile they are said to prefer to all others." The good Doctor did not care to live in a barn either, it would seem.

THE POET AND THE BIRCH TREE.—The Lady of the Woods is the appropriate name McWhirter gives to a birch tree, which forms the leading feature in the foreground of a well-known landscape painting, and which has had much to do with his fame as a landscape painter, especially where trees enter largely into the scenery. Certainly, if trees may be at all compared with men and women, the birch, above all its forest companions, may be said to possess all those graceful traits and delicate charms, which fairly entitle it to the poet's name.

THE VIRGIN'S MANTLE.—A correspondent of the *Journal des Roses* says that all plants about Havana are associated in some way with the Roman Catholic type of theology, and that the Coleus goes under the name of the Virgin's Mantle, chiefly from the beautiful purple of the parent species, Coleus Blumei. The Coleus seeds freely there, and there are now over 200 varieties of it recognized as distinct, in the Island of Cuba.

BARON FERDINAND VON MUELLER.—The many friends of this distinguished Australian botanist will be glad to learn that he has fairly well recovered from his long spell of illness, and is again at work energetically in his favorite pursuit.

NURSERIES OF JOHN READING, AT SALT LAKE CITY.—It has been impossible to work up all the notes we made of our hurried trip to the Far West last summer, or a few days spent at Salt Lake City would have had a chapter ere this. The gardening of this famous city is very good indeed, and much of this has been through the intelligent influence of Mr. John Reading, who, besides the management of a florist's establishment, seed store and nursery, gives considerable time to landscape gardening, and has had the arrangement of some of the most beautiful grounds in the place. Mr. Reading is from Cubbington, in Warwickshire, England, and came first to Philadelphia, where he was located as gardener in one of the best places in Germantown. He left there with his wife and family for Salt Lake City in 1861, taking with him the best wishes of his employers and all who knew him. His first efforts were as a nurseryman; but with 100,000 trees eaten up by grasshoppers, he was somewhat discouraged, and started as a florist, building the first greenhouses in Utah in 1869. These we found, on our hurried visit, enlarged and extended to accommodate a very large business. He expected to have at least 50,000 pot plants for the present spring trade. It was a surprise to find that, even in this far-away part of the world, horticulturists were keeping up with the times, and steam-heating was being introduced!

It seemed hardly credible that on what was once but an alkaline desert, and where it was necessary to turn on mountain streams of water to wash out the alkali from the soil before anything would grow, we should now be in the midst of such beautiful flowers and a beautiful home fairly embosomed in vines and handsome plants. Mr. Reading's wife and daughters deserve a good degree of credit in the success which has attended his efforts, and get in the city a good share of the honor which he so eminently enjoys.

OLD-TIME GARDENERS.—Some gardeners in the old world remain a long time in a situation. Mr. Mathison, who recently died, was gardener at Bowhill, one of the seats of the Duke of Buccleugh, for about sixty years. He was still in service when he died, though ninety years of age. The Duke also died a few weeks after. He was for many years President of the Royal Horticultural Society, and a princely patron of gardening.

JEAN VERSCHAFFELT—of Ghent, Belgium, well known to lovers of flowers all over the world, and especially by Coleus Verschaffeltii in American summer bedding plants, died on the 20th of April, in his seventy-fourth year.

MONS. ALPHONSE LAVALLEE—well known in this country by his admirable works and experiments in French arboriculture, died on the 3rd of May, at his home at Segrez. We suppose he must have been little beyond middle age. He was introduced to the writer in 1861 by the late Elias Durand, as a "young man who had decided to devote his wealth to the cause of arboriculture."

REPORT OF THE SECRETARY OF THE MICHIGAN STATE HORTICULTURAL SOCIETY.—From Charles W. Garfield, Secretary, Grand Rapids. It is said that fruit growing as a business, and gardening as an art and matter of taste, are progressing faster in Michigan than in any other State, and we fancy such excellent work as that performed by this society, and its labors in offering these annual volumes, have much to do with it. A special feature is, that not only the transactions of the society are given, but such facts from other sources as will be of service to Michigan readers and which may serve horticulture in the State, goes with the volume.

YELLOWSTONE NATIONAL PARK.—Mr. Charles Joly has issued, for the benefit of the French people, an illustrated tract on the Yellowstone Park. He fully describes its wonders, and pays handsome compliments not only to American scenery, but to American enterprise and the American people. Though the last is made up of "Yankees, Germans, Chinese," and the most diverse nationalities, they manage to live together in peace, happiness, and universal prosperity; solving for Europe problems on which the old world has been divided for centuries.

DRUGS AND MEDICINES OF NORTH AMERICA.—This comes to our exchange table, as a new candidate for popular favor. It is a quarterly, issued by Messrs. Lloyd, of Cincinnati, and deserves success. The medicinal plants of our country are figured, and everything known about them given in detail. We have had some sore experience recently about the ignorance of some medical gentlemen in regard to poisonous plants. No less than three separate plants, all innocuous, being sent to us as plants which produced death in their midst. So that not only among the non-professional, but also among the professional, we are sure the work is badly needed. Ranunculaceæ are given in this issue.

FORESTRY BULLETIN.—This appears to be published in New York city, though no place of publication is given. "Our esteemed friend and distinguished free-trader," is the title given to one of its leading correspondents, and its leading object, and that of the Forestry Congress, is evidently the fostering of the interests of free trade. Free trade as a political principle, or Protection as a political principle, may be very well. The only important point is, that the public should clearly understand what these Forestry efforts mean. The leading article in the *Bulletin* is devoted to showing that America will be ruined by cutting down its forests and planting corn; and that Canada will be saved by cutting down her forests to supply the United States, while the latter's "saved" forests rot from old age, for "you must save your water courses to run your mills, you know," though what we want the saw mills for, if we are not to cut our timber, is not explained. The self-sacrifice which will induce a Canadian to risk making an "arid, treeless waste" of his own country, in order to save the "life-blood" of the United States, will be highly appreciated in commercial circles. There is in this *Bulletin*, also, a sinister blow at a "certain Boston Professor" of Forestry. The certain Professor has done more in the intelligent interests of Forestry in America the last ten years, than the whole of those who abuse him will do in a life-time, and he will probably survive these petty flings long enough to do immensely more.

SCRAPS AND QUERIES.

POPULAR NAMES.—If those friends in the old world who find comfort in popular names of plants had a whole continent to deal with, as we have, we believe they would soon tire of popular names, pleasing as they may be to some ears. Our nurserymen and seedsmen are nearly driven crazy by the number which spring up in every direction, and they in turn appeal for relief to the editor of the GARDENERS' MONTHLY, who is powerless to help them. By this one mail we have three letters from these unfortunates. One has an order for "two bushels of evergreen seeds for cattle pasture. It is a kind of grass." Another wants to know if the "fruit bushes of the white briar can be had in any nursery?" The third, and she must be a highly educated lady, inquires for "bushes of the Paris de ponetta." As to the last, we hazarded the suggestion to our bewildered friend to send the lady a Pyrus japonica.

CYPRIPEDIUM FOR NAME.—A Memphis, Tenn., correspondent, under date of May 2d, writes: "I send you by to-day's mail two blooms of Cypripedium. The bloom is yellow, growing wild around here in the woods. I hope they will reach you in such order so as to be able to say positively what variety it is, and if there is any sale for it either with you or in England. I can get quite a number of them. I should like to hear from you through your MONTHLY."

[We received a horseshoe-shaped piece of cardboard, which had evidently been a paper collar box, and with the address of the editor and some postage stamps pasted on.

It is a waste of time and money to send plants in paper boxes.

The plant referred to in the letter may have been Cypripedium parviflorum, or C. pubescens. We do not know what demand there may be for them in the old world. It is an art few possess, to find out just where there is a demand for anything, and a greater art to profitably supply it.—Ed. G. M.

PRUNING AND MANAGEMENT OF TREES.—E. S. W., Beverly, N. J., writes: "I have been from home for two years, and on my return home I scarcely knew my surroundings, through the work of the tree butchers. I am disgusted with the stupidity of gardeners, as they call themselves."

The misfortune is, that people take no pains to inform themselves as to the difference between gardeners and those who only call themselves such. If people take counterfeit money for genuine, they have but themselves to blame for the blunder. And it is because of the readiness on the part of the public to accept counterfeit gardeners, that the genuine article is so scarce. There are few things that require more intelligent management than a tree, yet any wood-chopper who may call himself a gardener is engaged to attend to them without any inquiry at all. When we hear complaints of the stupidity of gardeners, we know that the sufferer has been in the hands of the counterfeiter.

No gardener heads back a tree. Trees have to be planted thickly at first for various reasons; as soon as the branches of the trees spread out and touch each other, the superfluous ones are cut entirely away.

THE BURDOCK.—Botanicus desires to know: "In a recent English periodical I read that country boys in England are in the habit of capturing bats by throwing the burs of this plant at them. The membranous wings of the animal become entangled in the hooked prickles, and it is thus brought to the ground. Can any reader of the GARDENERS' MONTHLY tell me whether this is a practice with American boys? If so, it would explain one of the names by which the burdock is known in this county."

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

WORLD'S EXPOSITION AT NEW ORLEANS.—Our readers must not forget that the horticultural department of this great exposition will be one of the finest ever seen on this Continent, and all interested in horticulture will be sorry if they fail to lend a hand to ensure its success. Mr. P. J. Berckmans will leave soon for Europe, expressly to get the folks in the Old World to lend their assistance. No better representative of intelligent American horticulture could have been selected, and any honors Europeans may pay Mr. Berckmans during his mission will be appreciated here.

REPORTS OF HORTICULTURAL SOCIETIES.—Mere lists of successful exhibitors, or the amount of money awarded to them, are no use at all to us; but if the the secretaries or others will send us notes of the special merits of the exhibits, or of anything that may be novel or excellent, it will be always a pleasure to receive them. Newspapers with such critical notes are also acceptable.

PENNSYLVANIA HORTICULTURAL SOCIETY.—The May meeting was fully equal to the April one, of which we gave some account. On this occasion there were but two amateur exhibitors: Mr. Clarence H. Clark, whose gardener, Mr. Warne, had a collection of ferns, foliage plants and azaleas—one of these being six feet high by fifteen feet in circumference; and Mr. Jacob Paul Jones, whose gardener, Mr. Bell, had a collection of herbaceous plants, in the cultivation of which he is quite famous. The commercial exhibitors were Mr. Evans, who, among other cut roses, had blooms of the Francis Bennett rose, which, by the way, the florists hereabouts insist on abbreviating to simply "The Bennett Rose;" W. H. Hanson, J. Kift & Son, Geo. Anderson, H. A. Dreer, Robert Scott & Son, Heron & Nisbet, Hugh Graham & Co., and D. Fergusson's Sons.

ROMAN HYACINTHS,
Paper White Narcissus,
Immortelles, &c.,
To the Trade Only.

L^s. BREMOND FILS,
OLLIOULES (VAR.) FRANCE
GROWER AND EXPORTER.
Apply for Catalogue and particulars to the General Agent for U. S. A.,
tmy2 **J. A. de VEER, 318 Broadway, New York.**

Art of Grafting and Budding

BY CHARLES BALTET,

Appropriately and fully illustrated by 186 cuts, showing methods, tools and appliances. Pp. 230, 12 mo. cloth, flexible. Price $1.25 mailed, postage free. Address,

CHAS. H. MAROT, 814 Chestnut Street Phila.

ASPARAGUS CULTURE.

The BEST METHODS EMPLOYED in ENGLAND and FRANCE.

BY JAMES BARNES AND WM. ROBINSON.

With translations of Mr. Lebœuf's Essay on Asparagus, and particulars of the seven years competition instituted for its improvement. Illustrated with wood cuts. New edition. 84 pages. 50 cents by mail on receipt of price.
Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

CRANBERRY CULTURE.

BY JOSEPH J. WHITE

Embodying in plain and concise manner all the useful and practical facts which study and experience have yielded to the inquiring Cranberry grower of the present time. 126 pages, 12 mo, cloth. Illustrated. Price, post-paid $1.25.
Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

FRUIT GROWER'S FRIEND.

AN EASY GUIDE FOR THE

Raising of Fruits for Pleasure or Profit

BY R. H. HAINES.

Paper, 84 pp., 8vo, price 30 cents; mailed post-paid on receipt of price. Address,

CHAS. H. MAROT,
814 CHESTNUT STREET, PHILA.

ROSES IN POTS;

observations on their Cultivation including the Autobiography of Pot-Rose,

by WM. PAUL.

92 pages, cloth, illustrated. Price, $1 00

Sent Prepaid by mail on receipt of price.

CHAS. H. MAROT, 814 Chestnut Street. Phila.

A MANUAL OF VEGETABLE PLANTS,

BY ISAAC F. TILLINGHAST.

Containing the experiences of the author in starting all those kinds of vegetab es which are most difficult for a novice to produce from seed; with the best methods known for combating and repelling noxious insects and preventing the diseases to which garden vegetables are subject. 102 pages, 16mo, cloth, price, $1.00, mailed, post-paid, on receipt of price. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

The GARDENERS' MONTHLY
AND HORTICULTURIST
FOR 1883-4.

SUBSCRIBERS

are requested to send at least one NEW name with their own, if possible. For this attention, we will furnish THE TWO at $3.00 for the year.

TWO NEW SUBSCRIPTIONS at $3.00. FIVE at $7.00.

Remit by MONEY ORDER or REGISTERED LETTER; or if you send DRAFT or CHECK, make payable on MIDDLE STATES, NEW ENGLAND or MARYLAND. On BANKS west and south of those points add twenty-five cents to each CHECK, to refund cost charged us for collection. Currency is at risk of sender.

RESPONSIBLE AGENTS

Will be allowed a liberal commission, retainable out of subscriptions secured and forwarded. Send for net rates. Sample copy 18 cts., postage stamps. We do not hold ourselves responsible for the acts of *Bogus Agents.*

SUBSCRIBERS MUST CHOOSE THEIR AGENTS AT THEIR OWN RISK.

Any Subscriber who has already renewed his subscription and paid $2.00 may order a new subscriber at the rate of $3.00 the two, by remitting the additional $1.00 to balance, and oblige, with thanks for past favors and efforts.

All subscribers, at whatever rate, are invited to take advantage of our list of CLUB PAPERS. See advertisement.

CHARLES H. MAROT, Publisher,
814 Chestnut Street, Philadelphia.

EXETER MACHINE WORKS,

EXETER, N. H.

19 FEDERAL STREET, BOSTON.

GREENHOUSE HEATING BY STEAM A SPECIALTY.

Half a million square feet of glass—upwards of three hundred houses—have been heated by our Apparatus the past TWO SEASONS. If you contemplate any changes, send for our Illustrated Catalogue.

A FEW OF THE PARTIES USING OUR APPARATUS:

I. C. WOOD & BRO. (3 orders), Fishkill, N. Y.
JOHN TAYLOR, Bayside, N. Y.
PEARSON & WAITE, Sparkhill, N. Y.
C. F. EVANS (2 orders), Frankford, Pa.
HARRY WEISS, Germantown, Pa.
LONSDALE & BURTON, Germant'n, Pa.
GRIFFIN BROS., Frankford, Pa.
LOUIS S. HART, Harrisburg, Pa.
HARRY CHAAPEL, Williamsport, Pa.
C. T. SEIBERT, Pittsburg, Pa.
W. M. F. HAYDEN, Wilmington, Del.
H. EICHELBERGER, Govanstown, Md.
AGRICULTURAL DEP'T, Washington, D. C.
W. E. MORTON (2 orders), Portland, Me.
CHAS. HURLEY, Exeter, N. H.
CITY OF BOSTON, Cedar Grove Cemetery
R. G. PARKER & CO., Dorchester, Mass.
J. F. HANSON & CO. (3 orders), Winchester, Mass.
H. C. CABLE, Danbury, Conn.
J. H. FALES, Pawtucket, R. I.
KNOX NURSERY CO., Vincennes, Ind.
B. O'NEIL, Elgin, Ill.
JAS. D. RAYNOLDS, Riverside, Ill.

A NEW BOOK NOW READY.

THE ROSE

A treatise on the Cultivation, History, Family Characteristics, etc., of the various groups of Roses, with accurate descriptions of the varieties now generally grown.

BY H. B. ELLWANGER.

Pp. 208, 16mo, cloth. Mailed, post-paid, on receipt of price, $1.25. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

KNABE

PIANOFORTES.

UNEQUALLED IN

Tone, Touch, Workmanship and Durability.

WILLIAM KNABE & CO.

Nos. 204 and 206 West Baltimore Street, Baltimore. No. 112 Fifth Avenue, N. Y.

GREENHOUSES HEATE

BY LOW PRESSURE STEAM.

mh12 SATISFACTORY PERFORMANCE OF APPARATUS GUARANTEED. ADDRESS,

E. H. BOCHMAN, - - - - Box 373, Pittsburgh,

Kissena Nurseries.

Trees and Plants.

Parsons & Sons Co.,

LIMITED.

Flushing, N. Y.

fff

Parks & Gardens of Pa

considered in relation to the wants of OTHER CITIES, PUBLIC and PRIVATE GROUNDS.

By WM. ROBINSON.

Splendidly and profusely illustrated. pp. 548. Octavo. $7.50. Mailed post-paid on receipt of price.

Address, CHAS. H. MAROT, 814 Chestnut St.,

The Botanist's Pocket Bo

2nd Edition, cloth limp, pp. 208. By W. B. Hem... Containing the Botanical Name, Common Name, ... Situation, Growth and Time of Flowering of every ... arranged under its own Order. Price $1.70. Mailed, po... free.

CHAS. H. MAROT, 814 Chestnut St., Ph...

JUL 1 1884

Harvard College Library

THE GARDENERS' MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

Vol. XXVI. No. 307.
(Combined Magazines, Thirty-ninth Year.)
JULY, 1884.
PUBLISHED BY CHARLES H. MAROT,
814 Chestnut Street, Philadelphia.

[Entered at the Post Office, at Philadelphia, Pa., as second-class matter.]

THE GARDENERS' MONTHLY

AND HORTICULTURIST.

It is published on the first of every month at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS relating to subscription or advertising should be addressed.

☞ Communications, Copy and Packages for the Editor should be addressed to THOMAS MEEHAN, GERMANTOWN, PHILADELPHIA.

SUBSCRIPTION PRICE, POSTAGE PAID, $2.00.

ADVERTISING RATES IN THE GARDENERS' MONTHLY:

	⅛ col. or 12 lines.	⅙ col. or 16 lines.	¼ col. or 24 lines.	½ col. or 32 lines.	⅓ col. or 48 lines.	1 col. or 96 lines.	1 page, or 192 lines.
One Insertion	$3.00	$4.00	$5.50	$7.00	$10.00	$18.00	$35.00
Two times, each	2.90	3.90	5.00	6.80	9.00	17.00	33.00
Three " "	2.80	3.75	4.75	6.55	8.50	15.50	30.00
Four " "	2.70	3.60	4.50	6.30	8.10	14.40	27.00
Five " "	2.55	3.40	4.25	5.95	7.65	13.60	25.50
Six " "	2.35	3.15	3.93	5.50	7.05	12.45	23.50
Seven " "	2.20	2.95	3.65	5.15	6.60	11.75	22.00
Eight " "	2.05	2.75	3.45	4.80	6.15	10.95	20.50
Nine " "	1.90	2.45	3.20	4.45	5.70	10.15	18.55
Ten " "	1.75	2.30	2.85	4.05	5.25	9.30	17.45
Eleven " "	1.60	2.15	2.65	3.75	4.80	8.55	16.15
Twelve " "	1.50	2.00	2.50	3.50	4.50	8.00	15.00

Twelve lines nonpareil is ¼ col. A less space than ¼ col. will be furnished at same rate per line as ½ col.
For space on FLY-LEAF and LAST COVER PAGE, also FIRST PAGE advertisements facing last reading page, 20 per cent. advance on above rates will be charged.

CHAS. H. MAROT, Publisher, 814 Chestnut St., Philadelphia.

CONTENTS OF THE JULY NUMBER.

COMMUNICATIONS:

How to Get Rid of Moles ... 193
Propagating Plants ... 193
Ipomœa Noctiphyton ... 195
A Word About Moles ... 195
Fastening Climbing Plants to Walls and Fences ... 195
Notes on Chrysanthemums ... 196
Japanese Maples ... 196
Steam Heating ... 199
Of Tabernæmontana ... 200
Roses, "The Duke," Bennett, and Sunset ... 200
Tame Toads ... 203
Relation of Soil to Trees ... 207
The Locust Tree in the Canary Islands ... 207
Caltha Palustris ... 211
The Philadelphia Rose Rot ... 211
Caltha Palustris ... 212
Condition and Prospects of American Gardeners ... 216

EDITORIAL NOTES:

Rhododendrons—The White Fringe—American Ash—Japan Snowball—Early Flowering Asters—Retinospora plumosa aurea—Wire in Hedges. Fir Tree Oil—Wm. Francis, Bennett Rose—Rose Forcing in America ... 197
Prodigious Strawberries—A Pear Blight in California—Large English Peaches—Gooseberry Jelly—English Gooseberries—The Peach Knot—Canker on Apple Trees—A large Souvenir du Congress Pear—American Peaches in France—Boston Marrow Squash—The Earth Almond—Comparative Age of Apple Trees—Cactus Hedges—Hardy Apples—Stonewall Jackson Apples—Introduction of the Cabbage Caterpillar—Paris Green—Osage Orange for Silk Worms—The Currant Grape—The Jerusalem Artichoke The Baldwin Apple—A Large Peach—Almonds in California—Graft Hybrids ... 201-206
Cause and Prevention of Forest Fires—Worrying over Forests—Tree Planting in the West—Mulberry for Silk Culture—Forest Planting—Rapid Growth of the Southern Yellow Pine—Forestry Fires—The Corsican Pine—The Catalpa in Australia—The Larch in the West—Longevity of the Beech in England—The Blue Spruce—Grand Old Trees—Sumac—Longevity of Trees—West Virginia Forests ... 207-210
Destructives at Harrisburg, Pa.—Clover in New Zealand—Origin of Word Fox-Glove—A Cure for Injury from the Poison Vine—Rhododendrons Sending Plants to Europe—A Swindler Caught—Truffles in America—Ozone and Vegetation—Knaves and Fools—The First Apple Tree in British Columbia—Robin Adair—Ancient Horticulture in America—The Peach—Historical Jottings on Vegetables—Bast, or Russia Mats—Professor S. B. Buckley—The late Dr. Engelmann—A Successor to Dr. Engelmann—A. J. Downing and Charles Downing—Nichols & Lorton—Wilson Flagg—Pyrus Maulei—Hon. M. P. Wilder—Transactions of the Illinois State Horticultural Society for 1883—Proceedings of the American Pomological Society—Massachusetts Horticultural Society—Exportation to France and other parts of Europe—How to Heat a Greenhouse with Water—Vacation Cruising—Garden and Farm Topics—Catalogue of the Native and Naturalized Plants of Buffalo and Vicinity—Godey's Lady's Book ... 211-213
Reports of Horticultural Societies—Pennsylvania State College—After the Chrysanthemum Show in Fairmount Park ... 223-224

NEW OR RARE PLANTS:

The Crested Iris—Single Pæonies—Rose, Queen of Queens ... 197-198
Winter Blooming Greenhouse Plants—Rose, Merveille de Lyon—A Fine Variety of Mignonette ... 202-203

SCRAPS AND QUERIES:

Protective Hedges—About Dwarf Almonds—A Double Flowered Hydrangea—Disease in the Dwarf Almond ... 196-197
Propagation of Lilies—Greenhouse Flues and Greenhouse Plans ... 198
The Peach Tree—The Curl in the Peach—A Fine Keeping Pear—Peach Curl in Indiana—Canker Worm—White Blackberries ... 203-207
Alaska and its Forest Products—Rejuvenating an old Wood—The Horse-chestnut ... 210-211
Winter at Richmond, Indiana—Abnormal Strawberry—Freaks of Nature—Queries about Roses ... 215-216

THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

VOLUME XXVI. JULY, 1884. NUMBER 307.

FLOWER GARDEN AND PLEASURE GROUND.

COMMUNICATIONS.

HOW TO GET RID OF MOLES.

BY T. BENNETT.

The ground mole has been for a long time a constant source of annoyance to gardeners and farmers, and the question has often been asked, "Is there no way of getting rid of this pest without the tedious process of trapping it?" which at best is only a partial relief. To this question I answer, Yes. The remedy I have known for many years, and I wish to give the public the benefit of it through the columns of the GARDENERS' MONTHLY. Like everything else that is given gratis, perhaps some will be found to deny or contradict the good effect of this remedy, but I challenge contradiction and demand a fair test from the public. One pint of the seed of the castor oil bean (Ricinus communis, or Palma Christi) is sufficient to clear any garden of an acre or less for the season, if properly dropped in their runs, which is simply to thrust the forefinger into the mole hill and then drop a bean there, which he will be sure to eat next time he comes along; at the same time covering up the hole made by the finger with a bit of earth, chip, stone, or clod, so as to make the run tight as before and keep out the light. This plan I have found effectual in all gardens where I have tried it. It is not quite so satisfactory in grass lands, because it is often hard to find all their runs in the grass. Also, in planting corn in fields where this pest abounds, if a seed be dropped occasionally in the hill along with the corn the mole will eat the bean in preference to the corn, and as sure as he eats it that is the last of him. If this plan be adopted when the moles first begin to run, which is generally after the garden is made and nicely planted, they are easily got rid of, and no trap of any kind need ever be introduced into the garden. This saves much time, labor and annoyance.

Chambersburg, Trenton, N. J.

PROPAGATING PLANTS.

BY F. L. TEMPLE.

Is there any more bewitching occupation that reasonable mortals can engage in than the propagation of new and rare hardy trees and shrubs? To see springing up around you the thrifty rows of little beauties collected by loving hands from the uttermost parts of the earth, nature's darlings, the pride of many distant people, and the surprise and delight of our own countrymen, is a pure and daily new sensation, whose bright charm keeps us always children in our quick impressibility and enthusiasm.

The exciting quest of new and unknown trees, in unvisited lands, the search through hidden valleys and over wild mountains for the strange forms of plant life which every country—almost every little island—is sure to present to the quick eye of the trained botanist, is a pleasure of a kindred sort; but this is the privilege of only a select few who are ready to endure fatigue, discomfort, even to brave death itself, in their devotion to this absorbing pursuit. We, at home, receive the benefits of this enthusiastic devotion, and have their choicest discoveries to admire and handle, without any of their sacrifices.

We get from far Japan a "Cercidiphyllum," perhaps, and we prepare an ideal soil for it that shall, we hope, cause it to express its satisfaction by a quick responsive growth. We study all its parts, and its habits; we make up our mind how best to propagate it, for that is the great and absorbing question from the first, how to produce many from one, so that all who desire it can at last have a fac simile to plant in their own grounds.

We first try to root cuttings in the simplest and most common way, from the growing tips. It refuses, point blank, to root in this vulgar way, and, although somewhat disconcerted, we cherish it all the more for its aristocratic reserve. We wait till winter and try hard cuttings—surely hard wood will root easily if soft wood will not, and we shall see with raptures the sturdy white roots break forth to make a rooted plant, and another. But no! we have not found the key yet to its secret habit of growth, and it baffles us again. Well! thanks to an older student of nature, we can graft it upon some related tree—we shall compel our reticent guest to obey us and multiply, this time. We look about us for the stock to graft on, and lo! there is no kith or kin to be found of relationship near enough to persuade it to grow on borrowed roots! What next to do? We can layer it, but that is so slow, and our tree is so very small. To wait for seed to mature is not to be thought of; our friends are waiting anxiously for their little tree to plant out. Some way there surely is, if we can only hit upon it. One more means occurs—to graft it upon pieces of its own root. It is done, it succeeds, and the reluctant beauty is won! Two years later and we have some rows of little trees growing as contentedly as if on their native heath. Next we receive a cherry tree with fine, drooping branches and double, rose-colored blossoms, so 'tis said. This is the favorite drooping tree of the Japanese, and it gives us no trouble at all—it takes readily on our garden cherry trees, and one more fair tree has come to stay. Then how the imagination clothes with romantic interest the planting, the gradual germination, the final sprouting and unfolding of such seeds as a certain seven that we are the happy possessor of—seeds of that rare and almost extinct genus of trees, now only known to exist in a few small trees as high as a man, in a little clump on the top of Table Mountain, Cape of Good Hope—the Leucodendron argenteum. This tree, which bears its seeds in a magnificent cone of large size, like a pine cone—although now a true conifer—has lanceolate leaves, seven inches long by one and a half broad, completely covered with a pearly-bluish, satiny nap, with long, satiny hairs on the edges of the leaves, which is, without exception, the most beautiful foliage that ever fell under our notice. No description can make it real to those who have not seen it; but have we not the cone and the leaves? And how we watched those precious seven black seeds! To our surprise they proved entirely tractable and seem to put on no airs because they are the "last of their race" and the handsomest trees in the world! Common pots of clay are hardly good enough for such visitors, but we will not put them in fancy ware—they might not like it. Who talks of the pleasures of dress, or fine fare, or of gold, beside the proud delight of the true propagator, who sees each blessed morning the cotyledons of those tiny wonders stretching out broader and thicker, and greener, and the satiny plumule—hope of the race, ah!—pushing up between. To rehabilitate such a genus of fast disappearing trees would be enough to have lived for. Then the interest of bringing into existence a multitude of such rose bushes as Anna de Diesbach, Alfred Colomb, and Jacqueminot. What visions of form, color and fragrance does the very name of rose conjure up. The rudest workman stops to wonder, and is half ashamed of his admiration of the full roses. And the sincere cultivator is not a jealous man. He can see, without envy, any improvement in method which his more original and experienced neighbor makes use of to help along his colony of seedlings and graftings. The rural "grafter," who knows only the art to rudely cleave and graft his fruit trees, would look with unmixed wonder at the process of grafting the rare conifers and oaks, as practiced by a Dawson and a Trumpy. And so there is no more instructive or fascinating spot to a lover of fine and rare plants in this country than the famous Arnold Arboretium, near Boston, where that remarkable botanist and propagator, Mr.

Jackson Dawson, is at work, growing, testing and thoroughly proving the trees of every land to find the best for our own climate. The place has become a Mecca and a fountain-head for all thorough workers in the related trades, and is a centre whence is flowing a constant stream of the rarest and most practical information on the subject of both native and foreign plants. Long may it continue to be a means of benefiting our whole land. Truly to be a good propagator is as noble a trade as a brilliant man need aspire to, and is surer to bring its meed of fame. *Somerville, Mass.*

IPOMŒA NOCTIPHYTON.

BY J. WOODING.

Several correspondents have followed me in communicating what they know about this plant, but I fancy there must be several kinds mixed under one name. My plant has not convolvulus-shaped flowers, as mentioned by the Charleston lady, and I am quite certain mine is an annual, and not a perennial, as Mr. A. Veitch found to be the case with his. Another correspondent found his would winter in a cellar. Knowing that mine was an annual, I kept it over by cuttings, and these only just live through in a temperature of 60°.

Whatever be its real name, it was sent out by Mr. Peter Henderson as Ipomœa noctiphyton. He could no doubt tell whether it is a perennial or not. *Pencoyd, Pa.*

[If this be the Calonyction, or Ipomœa grandiflora, as we suppose, it may be as well to note that even botanists have confused two species as one. One of these, the Ipomœa bona-nox, is an annual; the other, the true Ipomœa grandiflora, is a perennial.—Ed. G. M.]

A WORD ABOUT MOLES.

BY F. NEWKOMER.

I have seen from time to time in the GARDENERS' MONTHLY, papers on the destruction of the mole. Some time since I noticed an article on this topic in the *Indiana Farmer*, which I cut out, as seeming to me of value. If you think it of as much interest to your garden readers as I thought it was to the farmer, you may perhaps like to use it in the GARDENERS' MONTHLY.

"I know from years of experience that moles care no more for the castor bean than they do for any other bean. I have a flower bed on the south side of my residence. Some years ago I planted some castor plants to shade the flowers. They grew and waxed strong, and year after year cast their seed in great quantities in that flower bed, and each succeeding spring I have been compelled to pull them out as common weeds. Yet with the ground sowed with castor beans as thick as dragons' teeth, the moles have been in that bed doing their work oblivious of the deadly bean. The best mole trap I have found is this: Haul a large heap of manure on the ground infected, late in the fall. The moles seek warm winter quarters and will hunt that heap of manure in droves, and yet they never leave the ground. After a heavy freeze comes, throw off the heap, dig out the animals and kill them. It is 'a sure cure.' It is said by some that moles do more good than harm. Well, I prefer to banish my moles by the free use of lime, salt and ashes, and by the warm winter quarters and slaughter as above suggested."

[In connection with this subject we find a note in a French journal, *Lyon-Horticole*. The editor says that he did not at all succeed in keeping flies away by planting the castor oil plant, but the seeds made into a paste, and then pills made thereof, was eminently destructive to rats, and that it was quite as destructive to them as arsenic or phosphorus, without being liable to the same objections.—Ed. G. M.]

FASTENING CLIMBING PLANTS TO WALLS AND FENCES.

BY M. D.

The double pointed tack now used for holding carpets, matting, etc,, in place, is probably the best contrivance made for affixing rose bushes and such climbing plants as the white jessamine, English ivy, and others, to the weather-boarding of houses, piazza posts, fences of close, vertical and horizontal boards, and to border stakes, large and small. Compared with leather, cotton, and twine strings, bits of tape, scraps of cloth and muslin, the articles heretofore used for vine fastenings, there is everything to be said in favor of the tack as to looks. The fact is, when in place, it is hardly, if at all, seen; and if seen, not unattractive. Then the work done with it is clean, trim, and complete in appearance, quickly accomplished, and with certainty, and at a great saving of time. This I say after a year's trial. But surely the use of these tacks is nothing new. Is it, however, common? I have certainly never seen them employed for the purpose here suggested, nor have I met with anyone who has; still, they seem so perfectly adapted to this work of vine and bush supporting that I cannot doubt but that professional and amateur gardeners, here and there, have long since found them out and put them to use. I will mention that two varieties of these staples are

manufactured; one kind being of steel, square-edged, and attenuate pointed; the other of malleable iron, round of edge, and, to use a botanical term again, merely acute at the point. Of course, the first, with wedge-shaped legs and square edges, are greatly preferable, as anyone may learn by giving the two a five minutes' test. I suppose I am free to say this—to speak thus critically—and say all, in fact, that I have said, as I am not interested in the manufacture or sale of these things further than any lover of flowers and gardening might be. Three sizes of these tacks are now made, the largest being three-eighths of an inch in width. Several more sizes, up to an inch in width, would be needed, should the tack be extensively adopted by the florist and private gardener.

Santa Cruz, California.

NOTES ON CHRYSANTHEMUMS.

BY EDWIN MILLER.

The Chrysanthemum question seems as if it might bear a little more discussion. Mr. Henderson will surely not regard a plant grown in the open ground, as a good specimen of pot culture. I think a good specimen plant can be grown in the open ground and as good flowers obtained as by plants wholly pot grown; there is no doubt of that. I have grown them both ways, and the unpotted has given good satisfaction in growth, and as perfect flowers as by the latter, that of pot grown. But is this a test of skill in plant culture? Mr. Henderson says several horticultural societies call for pot grown Chrysanthemums for each exhibition. But pot grown, and merely exhibited in pots, are two distinct things.

I entertain the same opinion as Mr. Wooding respecting pot grown plants. There ought to be a separate class for them at all shows, if the judges decide as they did at Philadelphia last fall—give first premium to the largest sized plant without regard to flowers.

It would be impossible for anyone to compete with plants under one year old raised from a single cutting, wholly pot grown, with such as those. Were these entirely and absolutely pot grown? I took particular pains to examine the plants at the Philadelphia show which have been talked of so much, and which obtained first premium, and I believe that Mr. Wooding has some ground for his remarks. I might have been mistaken in their age, but am satisfied they were not wholly pot grown as claimed, as on lifting them I noticed the bottoms of the pots were all broken and the plants had evidently made considerable growth in the ground below where they had been plunged as is usually the case with most plants plunged in pots in the open ground, and notably the Chrysanthemum.

Florist, West Manayunk, Phila.

[When the day is about ended, and night approaches, there may be differences of opinion in the twilight as to whether it is night or day. This communication shows how difficult it might be sometimes to decide as to what is a pot-grown plant. For instance, florists usually now grow Chrysanthemums in the open ground during summer, lift them into pots in the fall, and have splendid plants in this way with which wholly pot-grown plants can scarcely compete. It was supposed some of those exhibited were grown in this way. This has been shown to be a mistake—for the plants were pot-grown, but the pots were plunged in the open ground. Now the question would seem to be raised: If a premium be offered for skill in growing a plant in a pot, is it legitimate to plunge the pots so that some of the roots may go through the bottom of the pot and gain much of their food from the open ground?

For our part, we should decide in favor of their being classed as pot grown plants for all this; for in any event roots will come through the bottom. The pot may be on a bench in a greenhouse, and the roots will come through into the sand or ashes beneath, but surely it is pot grown for all.

If a pot be plunged in the open ground, and many roots get through, these must be broken off to put the pot on the stage, and the plants will wither and suffer, and this would injure their condition for exhibition. There is therefore no danger of any great advantage to the pot grower by plunging. In view of all these points, we should decide that plants in pots at exhibitions may be classed in competition as wholly pot grown, though the pots had been plunged in the open ground.—Ed. G. M.]

JAPANESE MAPLES.

BY ERNEST WALKER.

The unjust report that the Japanese maples are not hardy no doubt greatly interfered with their popularity. While the brief note in the October number, 1883, GARDENERS' MONTHLY, from the pen of Mr. S. B. Parsons, contains all that need be said in their defence against this charge and from a most excellent source, I beg to add my testimony.

We have been cultivating a few on our grounds during the past several years, starting them in frames, wintering them in same for two seasons, afterward planting them in the open ground; yet we have never had a tree winter-killed. The past, however, has been a winter of unusual severity—the coldest in many years—and while many old fruit trees have badly suffered and been even killed, the Japan maples have come through without the least apparent injury. Some one spoke of their being difficult to propagate in any other way than by seed. However, we have rooted cuttings both in sand in the greenhouse cutting bench and in open-air cutting bed, and at present have a few dozen cuttings rooted in the latter manner. *New Albany, Ind.*

EDITORIAL NOTES.

RHODODENDRONS.—The taste for these seems growing, and everybody is asking how to grow them? The fine, hair-like roots like to run in among stones, sand, peat, or some other open material, and when they get these they want nothing more. They wont grow in soil that is nothing but water, nor in close, compact earth. Anything else is agreeable to them. Some of these hardy kinds are very beautiful. Messrs. Hoopes Bros. & Thomas of West Chester, showed us one called Mrs. Milner, which was of as a deep red as the famous East Indian kinds of the arborea class.

THE WHITE FRINGE.—For some reason or other there has been quite a demand of late for this never wholly unpopular shrub. It is really desirable. It comes into bloom just after the earlier white flowering shrubs are gone, and the green leaves here and there among the fringy flowers give a pleasant relief. It is singular, also, that few people complain about its hard name, and it is quite as common to hear it addressed as Chionanthus Virginicus, as white fringe, even by very common people.

AMERICAN ASH.—Our excellent contemporary, the *Gardener's Magazine*, says there are no species of Fraxinus east of the Rocky Mountains. There are more species east of the Rocky Mountains than perhaps in any part of the world, and there has probably been a slip of the pen somewhere, which is worth correcting.

JAPAN SNOWBALL.—One might say that anything is as much alike as two snowballs, as to put it in the more common form, as "like two peas," but the Japan Snowball is very unlike the common one, and is withal very beautiful.

EARLY FLOWERING ASTERS.—We use the term, Asters, in the sense of representing the botanical family of Compositæ. These are usually autumn or late summer flowers. But Erigeron bellidifolium, takes remarkably well to hardy herbaceous garden culture, and is very gay with its lilac-purple blossoms all through the month of May

RETINOSPORA PLUMOSA AUREA. — A correspondent of the *American Garden* finds the golden feather cedar hardy as far north as Halifax, Nova Scotia. It is certainly a very desirable evergreen.

WIRE IN HEDGES.—We find the suggestion we made some years ago, that a wire, barbed or otherwise, through an Osage or Honey Locust fence, is all that is needed to make an impervious hedge, is at length progressing rapidly. It is best to attach the wire to light stakes when the hedge is planted, and let the sprouts grow through the wires as they will. It will not be necessary to attach the wire to the branches. The growth will itself keep the wire in place. No necessity for any patent method of attaching wires.

NEW OR RARE PLANTS.

THE CRESTED IRIS.—We had the opportunity of seeing this year, for the first time in American gardens, Iris cristata, a native of the woods of North Carolina. It was figured in the *Botanical Magazine* in the early part of the present century, and so should be in English gardens, if not lost. It is a "dear love of a little creature," as a modern society lady might say. It has very broad leaves, but when in flower the whole plant is but a few inches high. The flowers are of a bright blue, though there are other colors mixed, and form a sheet of color for nearly a week. It will interest the botanist by the very long tube to the flower, and possibly those versed in botanical philosophy may tell us what kind of bee or moth has the contract to draw the honey and cross-fertilize the flowers.

SINGLE PÆONIES.—Single Dahlias having struck a popular vein, there is now a movement in the direction of improving single Pæonies, and with some success. We heard a lady say of some not long since that they were "just lovely."

ROSE, QUEEN OF QUEENS.—When a correspondent recently wondered that the "Rose Editor" did not keep well read up in the proper ortho-

graphy of the queer French and other names given to Roses, he surely did not know of the immense number of new ones always claiming some glance from his rose-blinded eyes. It would take a constant reference to a Directory of the Cities of London and Paris together to get these legions of new names accurate, and then we should have to have a guarantee that the compilers got the names correct in the first instance. To say nothing of names, we barely get time to look at the pictures of the host of new candidates for popular favor which come to our table; but this "Queen of Queens" had something about it which insisted on attention. The flowers are five inches across, and of that delicate salmon rose color, so appealing in a rose. It is "said to be" the beginning of an entirely new race which will fully merit the title of Hybrid Perpetual, and will flower freely in the fall as in early summer. It is one of Paul's introductions, and is said to have had for one of its parents the old Belgian summer rose known as Maiden's Blush. As the picture appears in the *Florist and Pomologist*, we may feel certain its beauties are not exaggerated.

SCRAPS AND QUERIES.

PROTECTIVE HEDGES.—Some time since a correspondent who complained loudly of the damage from dogs, through his hedge affording no protection, was advised by the editor to plant the hedge with strands of barbed wire through it. We wrote to know how it answered, and here is the reply:

Referring to your postal of the 14th ult., would respectfully say that we have had three strands of that sharp pointed kind of wire (not that flat that they can see), stretched along the hedge, and soon had the fun of surprising a big dog very much. He was scratching his back in one of the hedges with great comfort. A real good peppering with shot woke him up, and in his hurry to get home, ran into the wire. He played the dogs with the fence, for he didn't see it to jump over, and he hadn't time to back out, so had to go through. Don't think that particular dog will bother us much this summer. Am rather pleased with the work, and regret that I cannot stay home for a few days to work the plan more fully.

ABOUT DWARF ALMONDS.—L. B. Case, Richmond, Ind., writes: In the November, 1884, number of the MONTHLY you published a note from me in regard to the Dwarf Almond, which is still an interesting subject to me, particularly as no one has given us a very definite answer yet. With this I mail you a few flowers from my double flowering white Almond, to show you its superior form and whiteness. When I come to compare the flowers of my white form with the usual red ones, I can see no difference, and now realize I have only the old nana. Like all the Dwarf Almonds I have ever seen, it is very short lived, although to a majority of people they all seem to live a long time, and appear to be hard to eradicate when once they have taken a good hold of any rich corner of ground; but let any one just keep all but a single stock cut away, and see how short lived a shrub it is. For the past two years I have been trying among my acquaintances to procure a very dark flowered form, but do not seem to succeed in finding anything different from the ordinary form. Now I feel quite certain I have seen them years ago, with very dark colored flowers, and I often find others have the same impression, but cannot locate any special place we have seen it. Again judging from analogy, there must be forms varying from the typical white and rose colored varieties, because all cultivated plants seem to adopt new and abnormal forms under cultivation, and if any of the readers of the MONTHLY should possess such a form, viz.: one with very dark colored flowers, and will send me a small plant by mail, I will in return send them a plant of my very choice white one. In the November MONTHLY I asked if any one could furnish the single-flowered variety of the Dwarf Almond, but no one seems to respond. This I very much regret, as I would very much prize such a shrub, and I think many others would also; so if anyone has it and would be willing to exchange for something else of equal merit, I should be pleased.

A DOUBLE FLOWERED HYDRANGEA.—A correspondent says he has a Thomas Hogg which produces double flowers. If each flower is really double in the florists' sense, and not merely one or two additional petals, we should judge it would prove one of the most popular novelties of the day.

DISEASE IN THE DWARF ALMOND.—"G. E. K.," Kansas City, Mo., says: "Will you kindly inform me through the pages of the GARDENERS' MONTHLY the cause of a sudden withering of the twigs of the double-flowering almond. The plants have until within the past week been growing finely, bloomed profusely, and now first one then another twig, sometimes two or three year old branches are withering, and the plants generally sending up plenty of suckers as far as the roots

extend. The destruction of the twigs is almost invariably preceded by a strong flow of sap through almost invisible cracks in the bark, forming a mass of gum on the outside. The plants stand in low ground, thoroughly trenched, and were all apparently in excellent condition. The plants made strong shoots late last season and commenced growing early this spring. After the flowers were three-quarters out we had a heavy snowfall, lasting twelve hours, and though lilacs were in full leaf, none were injured.

[This disease is very common in the East, and is the chief reason why the plants are not popular, as they once were. The double red, or Prunus triloba, is equally liable. The appearances are precisely similar to those in the fire blight in the pear, and must be akin to that disease. Whole branches above a certain point will die in one night, and it is always apparent that the point near the uninjured part has been killed before the upper, and that the upper portion only dies because the connection between root and branch has been severed by this local injury.

What causes this local injury? It is certain that it is not the work of an insect. It is equally certain that there is no influence under what we might term atmospheric or climatic causes, that would injure the stem for the space of an inch or so, and not below or above this line. There is only one other influence left of which we have any knowledge capable of such a local injury, and this is the attack of a fungus. We know by innumerable illustrations that fungus attacks produce precisely these appearances, and just these results. The experienced cultivator has no hesitation in saying that this almond disease, like the fire blight in the pear, ought to be credited to fungus attacks.

But here we strike a difficulty. In the cases where we know a fungus has destroyed vegetation, we can find the fungus by a good microscope, can figure it, show all its details and mode of working, name the species, and classify it in our botanical systems. But we have not been able to find the fungus in this clear manner which we assume to cause these "blights." Professor J. G. Hunt, of Philadelphia, and Professor Burrill, of Illinois, have found what seem to be fungi of a very low order, and which the microscope cannot well reach—Bacteria, Prof. Burrill believes, but which after all is but a name for a low fermenting organism—but beyond this nothing is clear. All we can say is that the almond disease is probably produced by a ferment fungus, and no remedy is known.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

STEAM HEATING.

BY A. B. FOWLER.

Just a few words in reference to Mr. Zirngeibel's article on water heating in your May issue. The principle there resorted to is very old, and, I believe, is described in Loudon's Encyclopedia of Gardening as having been first put in practice by a Mr. Fowler previous to the advent of the present system of hot water heating, about 1820, and for sundry reasons discarded after trial. It will also be found from the same source that steam was tried successfully before that time, was found to be adapted to the purpose, but was discarded on the sole account of great cost. At all events the honor of originality does not in Mr. Zirngeibel's case belong to him. I would say that the gentleman is mistaken if he thinks he can handle hot water, even under pressure, as easily as steam, nor can he heat a range of houses any better or as well. There are many places very close to him which are economically and satisfactorily heated by steam. Could we know them, there are very probably ample reasons for Mr. Z's failure with steam, which do not in any way go to show that it is a failure when in other hands.

Steam has been proved to be the best heating medium for all other kinds of structures, and why not for glass buildings? The only reasonable objection offered, that plants would not grow so well, has been refuted a hundred times, and nothing re-

mains for people to do in the matter except to have their apparatus put in by competent people.

All the letters written against steam heating have come from persons who have never tried it and know nothing about it, or from persons who have had apparatus put in upside down because it was cheap, and the subsequent failures have led them to cry out loudly against the whole subject and frighten the more timid of their brethren.

I had the honor of sending you a squib on this heating question some years since, which provoked the discussion which has been carried on in your magazine—doubtless oftentimes trying you sorely—for the past three or four years, and have watched each issue with much interest and much amusement at statements made, but have endeavored by silence generally to have compassion on you, and for this intrusion would ask your pardon. I, for one, would like to read a series of articles written on this subject, by any one whose experience had rendered him competent to give a full, fair discussion, for from such I think the mass of your readers would learn much concerning what is to them a very vital subject. *Boston, Mass.*

[The discussions last year were lengthy and trying to editorial patience, but the great importance of the subject led us to look charitably on the attempts to enlighten the public, much as they prevented room for other topics, almost as desirable.—Ed. G. M.]

OF TABERNÆMONTANA.

BY CHARLES E. PARNELL.

The double flowering garland, Tabernæmontana, Tabernæmontana coronria fl. pl. is a very handsome evergreen stove shrub belonging to the natural order Apocynaceæ. It is a stove shrub attaining a height of from two to five feet, with grey bark and opposite oblong lanceolate thin glossy deep green leaves, producing its sweet scented double white flowers in axillary peduncles, two to four flowers being clustered together. The flowers are very useful for cut flower work as they are of a pure white color, while the fragrance is delicate and delicious. It is a native of the East Indies, from whence it was introduced in 1770, but is now much less known than its merits entitle it to be, for if properly cultivated it will flower several times during the year. It thrives best in a compost of two-thirds turfy loam and one-third leaf mould well mixed; be very careful not to overpot the plant, and see that the drainage is perfect at all times. It also requires an average temperature of 60° during the winter, and also a light sunny situation. During the summer season it does best when planted out in a well enriched deep border, in a partially shaded situation, care being taken to keep it well supplied with water and free from insect pests. When grown in the house it is unfortunately very subject to the attacks of many troublesome insect pests, such as scale, mealy bug and red spider; so that in order to keep these pests in subjection and the plants in a thriving condition, it should be frequently sponged with whale oil soap and water, and frequent syringings are also necessary to keep the plants in a healthy condition. Propagation is effected by cuttings of the ripened wood placed in sand in gentle heat. Unfortunately the plant is of very slow growth, and it will take several years before one can obtain a nice specimen, and on this account it will probably never be extensively cultivated; but I think that if our amateur cultivators will only give this plant fair treatment, they would not readily part with their specimens, even if they are small ones. *Queens, N. Y.*

ROSES, "THE DUKE," BENNETT, AND SUNSET.

BY EDWIN LONSDALE.

It was asked in a recent number of the MONTHLY, what had become of "the Duke; had he returned to England?" In reply, Messrs. Craig & Bro., who have their greenhouses on Market street, West Philadelphia, find it one of the most profitable roses they have ever grown. They have a house 100 feet long and 20 feet or 25 feet wide, the centre and back tables of which are planted with the Duke, both on its own roots and budded; the stock used for budding is the old favorite Gloire de Dijon. The plants that are budded are decidedly the best. It is a free bloomer at any season of the year, but it is in the autumn and early winter, before Jacqueminots can be profitably forced, that it is most appreciated. Sixteen hundred and twenty (1,620) saleable buds were cut by Craig & Bro. from their Duke house during the eight days from December 25th, 1883, to January 1st, 1884, inclusive. They sold at wholesale at $20 per hundred, but many of them were disposed of at their retail store on Eleventh street. There are few roses will pay as well as the Duke. Will the William Francis Bennett?

It will interest your readers to learn that there is a well authenticated rumor afloat that plants of the "Bennett" will be on the market next year, 1885, instead of 1887, as at first announced. Ne-

gotiations are now pending as to the time of distribution and the price at which it is to be sold, between the two interested parties, Mr. Bennett and Mr. Evans.

Mr. Henderson's "Sunset" is well spoken of wherever given a fair trial. Next winter, however, will be the test. With us, it is a stronger grower than its parent, Perle des Jardins. There is nothing very peculiar about that, as some people try to make out there is, because we as often get fixed sports in the growing characteristics of plants as we do in the color of the flowers. There are several good sports amongst the Hybrid Remontant class, such as climbing Jules Margottin, etc., and in the trees, climbing Devoniensis, and in the Bengals, James Sprunt is a sport from old Agrippina; all remarkable for their extra vigorous growth over their parents. *Germantown, Phila.*

EDITORIAL NOTES.

FIR TREE OIL.—This insecticide seems to be gaining steadily in favor. It is certainly a great boon to amateurs, furnishing a safe and easy application. Plant culture by amateurs loses a great portion of its pleasure through the trouble with insects. Almost all remedies heretofore proposed have involved much preparation on every occasion of applying. It is a great thing to have something effectual ready at hand.

WM. FRANCIS BENNETT ROSE.—The *Florist and Pomologist* says: Mr. Bennett's Pedigree Roses, if not appreciated at their full worth in this country, appear to be so elsewhere. It is stated that an enterprising Philadelphia plant merchant, Mr. Evans, has bought half the stock of the crimson tea rose, William Francis Bennett, for £750, and has legally bound himself not to sell or otherwise dispose of any bud, cutting, or scion, but only the flowers, for a term of four years. The rose in question is not much known, except to those who have visited Mr. Bennett's rose nursery at Shepperton, or previously at Stapleford, but it has made its mark in Covent Garden and other markets, many thousands of its bloom-buds having been sold at highly remunerative prices, it being one of the most persistent of winter bloomers.

ROSE FORCING IN AMERICA.—The bright light of American winters is so favorable to flowers, that it is a matter of surprise to Europeans that we have such an abundance and grow them, especially roses, to such an enormous extent. The *Deutsche Gartner Zeitung*, of Erfurt, has a long article about our rose growers. In a tour through the New York rose houses he found Safrano, Bon Silene, Isabella Sprunt, Marie Van Houtte, Perle des Jardins, Niphetos, Catharine Mermet, Cornelia Cook, Douglas, Duchess of Brabant, Duke of Edinburg, Duke of Connaught, the kinds grown. Mildew—a form of Eurisiphe—was the only serious enemy he found. They did well under so low a temperature as 45° or 50°. General Jacqueminot required more heat, but was more profitable.

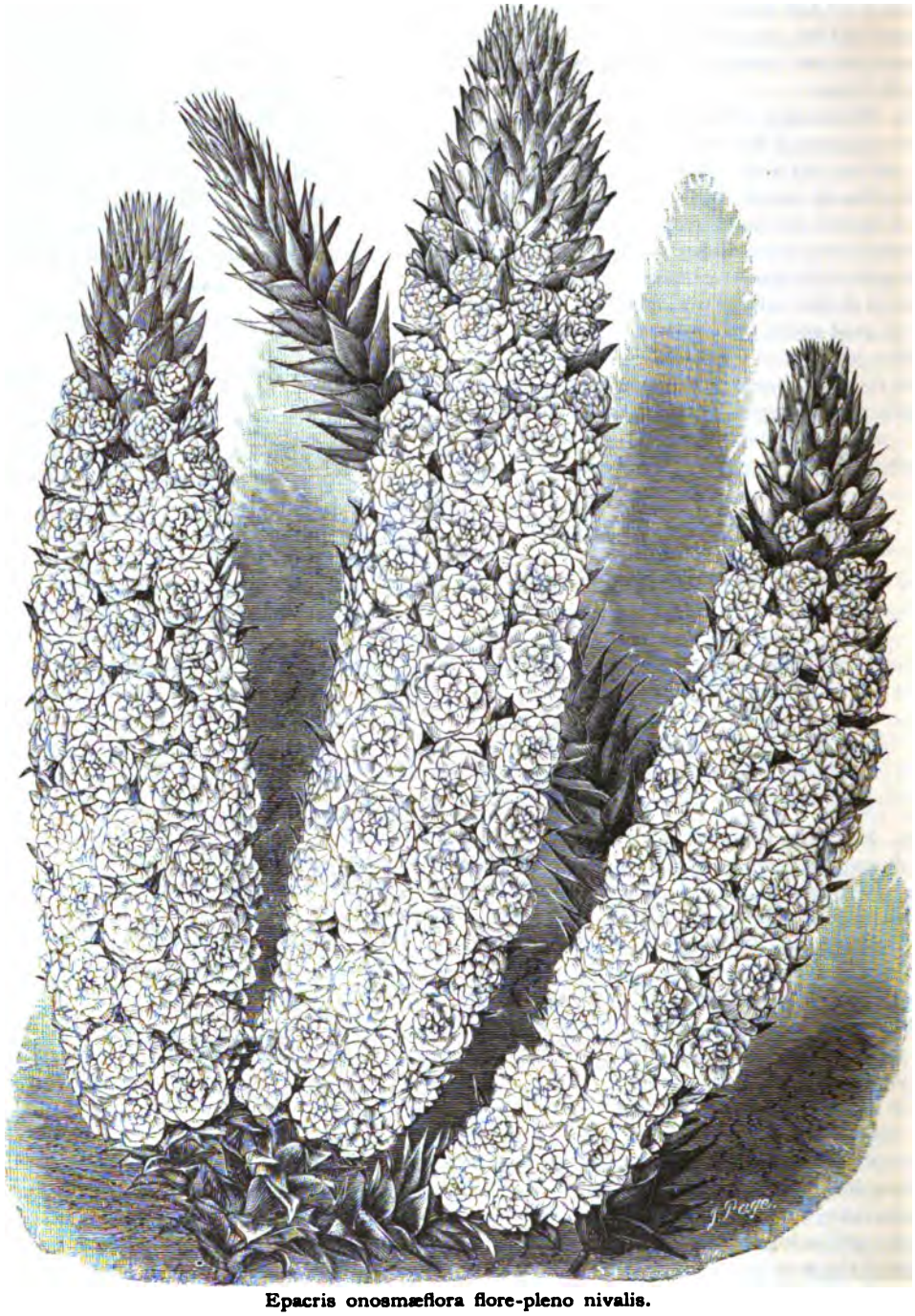
SCRAPS AND QUERIES.

PROPAGATION OF LILIES.—"E. W.," New Albany, Ind., says: "With this mail I send you a box containing a bulb of Lilium candidum with flower-stem bearing a good sized bulb at the top, and also a piece of stem from another bulb of same kind forming axillary bulblets. By cutting up the stem and placing the pieces in mellow dirt, the axillary bulblets develop and root, I find. Is this not a singular freak for this species? From a lot of several hundred seedlings of Dianthus Chinensis alba flore pleno, raised from seed I saved from plants of last summer, I obtained one of apparently very dwarf and floriferous character. While other seedling plants of same group have grown twelve to fourteen inches high and scarcely in bloom either, this one is a very compact plant but six inches high, crowned with eight double pure white flowers, and a great number of buds. Some of the side shoots rise scarcely two and a half inches above the soil in the pot with full sized flowers."

[Lilies have been propagated in this way. The Dianthus should prove a very desirable novelty.—Ed. G. M.]

GREENHOUSE FLUES AND GREENHOUSE PLANS.—"G. B. D.," Yonkers, N. Y., says: "Will you please inform me if a flue 100 feet long will work? I have been told it will not. And would you please state if there are any books published with nothing but the plans of greenhouses?"

[A hundred feet flue will work as well as a short one, if the upright part or chimney is carried up right over the furnace. If a damper is put in the horizontal part of the flue, near its junction with the upright, just back of the furnace, so that the upright would be well warmed and dried before sending the fire round the horizontal portion, we believe a thousand feet could be warmed as well as a hundred. There is no work solely on greenhouse plans.—Ed. G. M.]



Epacris onosmæflora flore-pleno nivalis.

NEW OR RARE PLANTS.

WINTER BLOOMING GREENHOUSE PLANTS.—A correspondent recently expressed a hope that those lovely winter and spring bloomers known as New Holland plants might yet again come into vogue. In the hope that our correspondent's suggestion may take root and develop to a popular idea, we offer the encouragement of an illustration of a new variety, Epacris, which is one of the most lovely of

all the genera of that country, or of its ally in the production of similar flowers, the Cape of Good Hope. This is simply a double variety of an old species, and was introduced by Wm. Bull, of Chelsea, London, with the following description:

"This exceedingly desirable and attractive novelty, is a native of Australia; it produces fine long dense spikes of bloom. The flowers have a tubular base ending in the five usual acute corolla lobes, while the interior organs are transformed into a rosette of white petals, which spread out to the full extent of the corolla lobes, and form with it a fine rosette-shaped flower. These flowers are pure white and very beautiful, the spikes being often as much as a foot long."

We know of nothing more enjoyable than a New Holland or Australian house, in the hands of a skilful gardener, from November till May.

ROSE, MERVEILLE DE LYON.—The new rose, Merveille de Lyon, exhibited by Edwin Lonsdale at the May meeting of the Germantown Horticultural Society, is a sport from the famous rose, Baroness Rothschild. This makes the third sport which the Baroness has produced, viz.: Mabel Morrison, White Baroness and the one above referred to. The William Francis Bennett is a seedling from Baroness Rothschild.

A FINE VARIETY OF MIGNONETTE.—A red flowered Mignonette is very popular in England. But we are afraid its appellation—its name, would be too common to say—Reseda odorata pyramidalis grandiflora, is too long to pronounce in an American flower market. The purchasers would forget what they asked for long before the seller could tell them the price.

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

TAME TOADS.

BY PROF. GEO. G. GROFF.

The common garden toad (Bufo Americana) is an animal easily domesticated, and a most interesting pet. For several years my mother allowed one to enter her kitchen, where it fed with great zeal upon the house flies. It became so tame that it would readily take flies from the fingers of any member of the family. At present I have one which is living in a cool hole in my bed of young cabbage plants, and it is doing good work in keeping away the little flies, which are so troublesome to that plant. Toads and little snakes are of value in destroying insects in the garden.

Lewisburg, Pa.

[A friend of ours, satisfied of the great value of the toad, and believing them very scarce in the vicinity, offered the boys five cents for every one they might bring him. There is nothing like boys for an advertisement. The proposition became known to every one in the township, and our friend found himself with nearly a cart load of batrachians to pay for; and became a firm believer in the dogma, that there may be too much of a good thing.—Ed. G. M.]

EDITORIAL NOTES.

PRODIGIOUS STRAWBERRIES.—We have had brought to our attention this season an extraordinary number of new seedlings, each claiming to be the best ever raised, but when we get them we fail to see any difference from scores of others already known, and decline to give the desired "boost" to them. We are willing to go to the expense of engraving anything when such engraving informs and instructs; but in the case of these strawberries, all we should have to do would be to sort out some cut of a bushel on hand, and no reader would ever be the wiser. This fact seems to impress others as well as us, for the trade cuts now generally aim at something else besides form and color. Before us is a colored illustration of a grand novelty, which gives a stalk with twenty berries all ripe, and not one less than three inches round on the side of view, and allowing one-half on the side we cannot see, this would give thirty berries all ripe at one time on a single stalk, and ranging from three to four and a half inches in diameter. We should not like to say such a sight is impossible, or that the picture is overdrawn, but we do say that few who buy the plants will ever see the picture realized.

A PEAR BLIGHT IN CALIFORNIA.—A very bad "blight" has appeared among the pear trees in California, but it is not yet determined whether it is identical with the "fire" blight, the terrible scourge of the pear growers in the Eastern States.

LARGE ENGLISH PEACHES.—There is a prevalent impression that under the artificial conditions of England, peaches can be raised larger and better than we can in our hap-hazard way in the open air, but we seldom get at the exact figures or facts. Recently Mr. Rivers sent two forced fruit to the editor of the *Gardeners' Chronicle*; one, a Golden Eagle, weighing 9½ oz, and 10½ inches in circumference; the other, Gladstone, 9 oz, and 10½ inches in diameter. This is good for ripening under glass in February.

GOOSEBERRY JELLY.—One would think that in those countries where the gooseberry is at home, and as plenty as blackberries, there would be no occasion to palm off other things as a substitute. But M. Girard, Director of the Paris Municipal Laboratory, calls attention to the manufacture of "gooseberry" jelly from seaweed, without a particle of a portion of a gooseberry in it. The color is given by means of fuchsine or some similar coloring matter, and the flavor is fairly well copied by means of a mixture of acetic ether and tartaric acid, with small quantities of benzoic, succinic, and œnanthic acids, and aldehyde.

ENGLISH GOOSEBERRIES.—These, which it was proposed to strike wholly from the list of American fruits at the last meeting of the American Pomological Society, and which motion was lost only by a very few votes, seem to be so growing in popularity that the famous firm of Elwanger & Barry are encouraged to make a specialty of one which they call "Industry." The fact is, if the ground be kept cool around the roots by a thick mulch, a pile of stones, or even a lot of old boots and tin cans from the kitchen, the English gooseberry does not mildew, and is a right good fruit to grow.

THE PEACH KNOT.—Knotted roots are among the troubles of Pacific peach growers.

CANKER ON APPLE TREES.—We believe the disease called canker, so annoying to the English apple grower, is not common in America. It seems to have been finally determined that the disease is, like so many similar ones, due to a minute fungus named Nectria ditissima.

A LARGE SOUVENIR DU CONGRESS PEAR.—Mr. Rivers, of Sawbridgeworth, England, has raised two of these which weighed 17½ oz. and 15 oz.

AMERICAN PEACHES IN FRANCE.—The Wilder, Cumberland, Musser, Alexander, and Concord, receive much praise from French growers who fruited them last year.

BOSTON MARROW SQUASH.—In Italy what appears to be this vegetable is known solely by its botanical name, Zucca. We believe our common form is Zucca Commersoniana. The Italians have now a new one which they much praise, which they call Zucca oliva.

THE EARTH ALMOND.—This is the Cyperus esculentus, a sort of tuberous rooted sedge grass, and has been under culture as the "Earth Almond" for at least two thousand years. It has been put into commerce recently as the "Zula nut," which gives occasion to the *Florist and Pomologist*, to reflect on the confusion the free encouragement of indiscriminate coining of popular names causes.

COMPARATIVE AGE OF APPLE TREES.—In the West twenty years is believed to be the average duration of an apple tree, as against forty in the Atlantic portion of the United States.

CACTUS HEDGES.—These are made from Opuntia Tuna in the South. If the fruit be in any demand, it may be on the whole profitable to have a cactus hedge; but if the joints fall off as easily as they do under culture, and get scattered (everywhere) around, the cactus hedge would be probably wished far enough in strawberry time.

HARDY APPLES.—The influence of evaporation, on hardiness has often been shown in the GARDENERS' MONTHLY. Frost kills trees which are usually hardy, mainly by its influence on drying the tissue, and not on actual cell rupture, as in the the case of plants which we know to be really killed by frost. It is well known that plants will endure a much lower temperature in moist atmospheres than in very dry ones. In the very dry atmosphere of Greely, Colorado, though the temperature does not descend nearly as low as much further north, the hardy apples of other places are often killed. Last winter such very hardy kinds as Tetofsky, Red Astrachan, Fameuse, Duchess of Oldenburg, and Ben Davis, were mostly killed. It is to the merit of the Wealthy, that it has been found to resist the drying winters of Greely better than any other kind.

STONEWALL JACKSON APPLES.—The Canadian *Horticulturist*, says, that the Stonewall Jackson was found growing in a stone wall on the farm of Silas Jackson, in Clarence, Annapolis County, Nova Scotia. The tree is said to be a strong, up-

right grower when young, and a good bearer. The fruit is described as medium in size, roundish and slightly conical; in color yellow, shaded with light and dark red; the flesh whitish yellow, tender, juicy, sub-acid and of very good quality. In use in January to March. So far as we know its reputation is purely local. There is another Stonewall Jackson grown in Southern Alabama that is quite distinct from the one of Nova Scotia.

INTRODUCTION OF THE CABBAGE CATERPILLAR.—Mr. Wm. Saunders of London, Ontario, in the proceedings of the Royal Society of Canada, tells us that the cabbage butterfly (Pieris rapæ), which has proved such a pest to the market gardener, made its first appearance in this country, at Quebec, during the period of the American civil war, and is supposed to have been brought over with fresh vegetables, supplied to the British troops sent to Canada at the time of the Trent difficulty. The insect has since spread over an immense area and multiplied enormously. It now extends from the Gulf of St. Lawrence, all through the Eastern and Middle States, as far west as Nebraska and South to the Gulf of Mexico.

PARIS GREEN.—Fenderson has gone into the conundrum business. He wants to know why an unripe pear is more deadly than an immature apple. As nobody ever tries to guess the answer, Fenderson says (his eyes beaming with joy at his own ingenuity), "Pear is green."

OSAGE ORANGE FOR SILK WORMS.—Prof. Riley says: "Samples of cocoons were sent to the secretary of the Silk Board at Lyons, and appraised by him. The Maclura fed cocoons were rated at 85 cents per pound; those raised partly on Osage and party on mulberry at 95 cents per pound; and those fed entirely on mulberry at $1.11 per pound."

THE CURRANT GRAPE.—Though California has succeeded so well with the raisin, no attempt seems to have been made with the currant, which is made from the Black Corinth, or seedless grape. The white and red varieties are in some collections, and now we learn the black has been safely landed there. There ought to be as much profit in this as in the raisin, and no doubt it will be found so. The California fruit growers have a wonderful faculty of making a thing like this succeed when once they get hold of it.

THE JERUSALEM ARTICHOKE.—This is the tuber of a species of sunflower, and is really a very good vegetable when properly cooked. At one time it was in general use, and it is again making its appearance in city markets.

THE BALDWIN APPLE.—A correspondent of the Massachusetts *Ploughman*, says this was a wildling found near Wilmington, Mass., by Samuel Thompson, of Woburn. Grafts were taken to Abijah Thompson, whose neighbor, Col. Baldwin, subsequently distributed them.

A LARGE PEACH.—The *Florida Dispatch* records a Tinley peach, which measured thirteen inches round, and weighed twenty ounces. Is this the largest peach on record?

ALMONDS IN CALIFORNIA.—There is no part of the world in which some trouble does not follow the fruit raiser. The almond has been a profitable crop in California, and always will be, but some obstacle will always arise needing human ingenuity to overcome. We learn that the almond has proved unprofitable in most places. Colonel Hollister's almond orchard of 55,000 trees in Santa Barbara is an utter failure, though well cared for. The fruit is small and the hull adheres closely to the nut. Perhaps, in time, some more suitable variety may be found. The almond flourishes remarkably well in this vicinity (San Jose), some orchards yielding as high as $300 profit to the acre. Such soil is likely to be worth a fabulous price.

He says: "Compared with the Eastern States, where they have the beech, hickory in many varieties, the pecan, black walnut, besides all we have here, our list seems short. This branch of industry is quite new, and in time we may find numerous varieties suitable to our soil and climate."

GRAFT HYBRIDS.—We have often expressed surprise that persons will sit down and write an article for an hour to show that two halves of a bud cannot be united and made to grow by budding or grafting, rather than spend ten minutes in testing the matter by experience. It is now some years since by direction of the Editor of this journal, twelve single-eyed grafts, six of Baldwin and six of Rhode Island Greening, were split, and one-half of each used for a single graft, and three of these split grafts grew. Though we have read no end of "impossible" papers on the subject, we have only now to record the first instance of an actual experiment, which we find recorded by a correspondent of the London *Journal of Horticulture:*

"A bud is virtually a single parent cell in its winter costume, with its spring ration enclosed. These bud cells may be split, and the halves of different ones united, thus mixing their contents

as effectually as in hybridizing. Mr. Meehan assures us that he has done it. During the last season I split the buds of several kinds of apples and united them, and have three united buds living. I cannot tell what kind of fruit they will bear, but I know that halves of different buds united and grew well. This is a union of different cells, and I see no reason why their substance did not unite to form a parent cell which multiplied itself to build up the shoots just as any other cell does, and I cannot see why it will not be a mixed or hybrid wood, and bear a mixed or hybrid fruit. If so, I shall not call it a sport, but a graft hybrid. And such are all sports. They are hybrids resulting from the union of different cells."

SCRAPS AND QUERIES.

THE PEACH TREE.—Prof. Groff says: "I have observed that the peach tree frequently does remarkably well on the north sides of hills and mountains, where the cold lingers longest in spring. I have seen it cultivated on such spots when it refused to do well in any other spot in the region. The hint may be worth something."

[Peach trees often suffer by the temperature of the soil going beyond 80°. A north aspect is favorable to low temperature, and flower and leaf-buds are excited prematurely by early suns, when at low elevations or on warm aspects. The peach is the healthiest when there is no disposition to growth till the spring time has fairly come. This is another reason in favor of a northern aspect.—Ed. G. M.]

THE CURL IN THE PEACH.—We had supposed that this disease which takes the form of blistered and succulent blotches on the leaves, with a white mildewy substance beneath, was everywhere and generally familiar to peach cultivators. But specimens with inquiries as to the nature of these blisters come to us from different quarters, with the information that it was in those localities hitherto unknown. It is also very much worse in some parts of the country than in others. We have never seen it anywhere so destructive as in Canada, unless what we saw in California along the Stanislaus river was the effect of the curl, as we were told it was. Whole branches were dead, with the dry leaves attached to them. In Pennsylvania only a few of the earlier leaves are attacked; these fall off, but the shoots continue and make the new and healthy leaves necessary to health. The wood is weakened but not destroyed.

The disease is caused by the growth of a minute fungus parasite. Each species of fungus requires certain exact conditions of heat and moisture before it will germinate, and judging from the facts attested in these widely separated localities, we conclude that a comparatively low temperature is required by this one that produces the peach curl, and that when the weather gets very warm, or say to our eastern summer heat, this species will not develop. A steadily warm temperature will therefore be the best protection against the curl.

A FINE KEEPING PEAR.—On May 17th we received a basket of excellent pears from Dr. G. W. Russell, of Hartford, Conn., with the following note: "I leave a basket of seedling pears, seedlings from the B. d'Arenberg, which I have raised. Have fruited for several years; a very good keeper, as you will see, and keeping until May every year. Very good for baking; occasionally fair for dessert. Seed planted 1857. Please give them a trial by baking. Good bearer; healthy growers. There are already too many pears by hundreds—perhaps this is one of them—but few keep so long and so easily as this."

It was really so very good for eating that it was a great temptation to overlook the request to bake them, which was however done. In former times the Beurre D'Arenberg was one of the most popular with the old German settlers at Germantown, near Philadelphia, and there were many seedlings from it in cultivation when the writer settled there some thirty years ago. Of these the Potts pear and the Quince pear are, we think, possibly in existence yet. The Quince pear has similar characters with this, very much like it in appearance, and would keep till midsummer if desirable, though in use for cooking purposes the whole winter long. We have not had any of them quite so good to eat as this one. Another good point in its favor was that the trees always bore full crops every year. In the fall of the year the rich golden fruit gave the tree the appearance of being freely decorated with quinces, from whence its name. Notwithstanding Mr. Russell's suggestion that there are too many varieties, this is a good class to look after, and we think there is plenty of room for the "Russell" pear.

PEACH CURL IN INDIANA.—"E.W.," with specimens of curl, adds the following note: "I notice the luxuriant young foliage of peach trees becoming badly affected, obviously by the cool wet weather of the past few weeks, preceded as this was by a week or so of bright warm weather which had excited vegetation into rapid growth. The leaves are variously colored from white to pink

and crispately curled, crumpled and wasted in the most singular manner. I send by this mail a few specimen leaves."

CANKER WORM.—A correspondent from White Plains, New York, writes that the canker worm is playing great havoc with his apple trees, and desires to know whether there is any cheap and effectual remedy. We suppose Professor Burrill's plan of using an engine with a solution of Paris green is the best remedy so far.

WHITE BLACKBERRIES.—"W.E.M.," Alexander City, Ala., writes about the rarity of value of a white blackberry he has found wild. These and white black cap raspberries are not uncommon, but no one has been found capable of holding its own against the colored kinds.

FORESTRY.

COMMUNICATIONS.

RELATION OF SOIL TO TREES.

BY PROF. GEO. G. GROFF.

I am very much interested in the subject of variability of soils, as adapted to different forest trees. Chestnuts do need light porous soil, and grow on such limestone in Chester county. But on soil, apparently equally light and dry here in Union county, they do not grow. And yet, so far as I observe, there is always a little more clay in soil here than in Chester county. And again, this soil in Union county seems the natural home of the honey locust, every waste piece of land soon becoming covered with a luxuriant growth of it; while in Chester and adjoining counties, although this tree is found, I have never seen it so much at home as here. *Lewisburg, Pa.*

THE LOCUST TREE IN THE CANARY ISLANDS.

BY PROF. GEO. G. GROFF.

Some years ago the Hon. Eli Slifer, ex-Treasurer of Pennsylvania, was visiting a fine park in the Canary Islands. After viewing many beautiful, and to him, unknown trees, the guide said, "There still remains one tree, the most beautiful on the grounds, which you must see." What was his surprise when a common locust tree (Robinia pseudacacia) was pointed out. He could not help remarking, "Why, that tree is so abundant at my home, that we use it for fence posts."

Lewisburg, Pa.

[The yellow locust does better in the Old World than we have ever known it to do in this, its native country. The locust borer and the leaf-skeletonizer which is so destructive here seem to be there unknown. Through France it is seen everywhere, and growing with a remarkable luxuriance. In the drier regions of our country it has done very well, and is often seen cultivated in Colorado, Utah and California, but troubles follow them there. Last year we saw numbers in Salt Lake City, where they once formed the principal shade tree, of a yellow color, which the experienced horticulturist knows indicates something radically wrong.—Ed. G. M.]

EDITORIAL NOTES.

CAUSE AND PREVENTION OF FOREST FIRES.—Mr. Wm. Little, of Montreal, takes the same ground in a letter to London "Forestry" that we have so long taken in this magazine, that forest fires could not occur if dead brush and dead timber were not left carelessly lying loose. The legislation required therefore is not "rewards for putting out fires," or "prosecution of those who start fires," so much as fining heavily all who have these tinder traps on their property. It is absurd to talk about protecting our forests when we allow the material for fires to lie around in every direction. Green wood will not burn—that is a certainty. Forests are to be encouraged, but huge piles of brushwood are wholly different.

WORRYING OVER FORESTS.—It appears by the records that so early as 1696, the French government were worrying over the near prospect of the total destruction of Canadian forests, and engaged in devising measures for their protection. The interest is that notwithstanding all this worry, from year to year for near 200 years, nothing

whatever has been suggested which is at all practicable. The time will probably come when the human mind will turn towards the planting of new instead of the saving of old forests, then the worrying may not be in vain.

TREE PLANTING IN THE WEST.—Mr. F. P. Baker, of Kansas, in an essay before the Washington Convention of 1882, the proceedings of which have just been issued by the U. S. Agricultural Department, shows that though much of the tree planting stimulated by legislative and other pressure, has been ignorantly and uselesssly attempted, there has been a very encouraging degree of success. Every farmer in some districts has set out ten, twenty or thirty acres, cultivating them like an orchard for a year or two until their own shade can keep down the weeds, and numbers of these are now growing up successfully, and most of these farmers could get the full value of their timber planting in any sale of the farm, should a sale be desirable. Estimates of growing trees are given, up among the millions. Governor Furnas, of Brownville, Nebraska, also contributes a very intelligent essay on the same subject, for his State. He thinks that there are over 244,000 acres of planted forests there that are successes. He gives a large list of forest trees that have been found to grow very well, and which are known to have valuable properties.

MULBERRY FOR SILK CULTURE.—There is much to be done yet to make silk culture a practical success. Thanks to the efforts of the Women's Silk Culture Association of Philadelphia, we now know that the silk worm can be raised, and that the silk can be produced profitably enough to compete with the silk production of other countries. Now it is for the practical man to step in and help them to mulberry leaves cheaply. In a memorial to the State Board of Agriculture of Pennsylvania, these ladies say: "Will farmers, agriculturists and horticulturists plant the money-bearing mulberry for the people's use—will our men use their representative strength and intelligence to aid the efforts of the Women's Silk Culture Association of Pennsylvania? To this end let your honorable Association and the Agricultural department plant trees round school houses, and near fences on the road side. The rapid growth of the Morus alba makes it valuable for shade and being compact and susceptible of polish it is valuable for many purposes, rivaling oak for boat building and useful for charcoal, etc. One acre of the mulberry will furnish food for 80,000 worms, and at a minimum price and estimate of cocoons should yield $80 net, and every year the trees would yield more." It is well for the ladies to suggest something of course, but we fancy not much will come from the union of shade or timber ideas with that of silk worm culture. In the first place, it is very costly to gather leaves from tall shade trees, and then trees continually denuded of their green leaves would probably make worthless timber. But the suggestion of the ladies has this merit, that it leads to the inquiry: What is the most profitable method of growing the mulberry for silk worm feeding? Our idea would be that for our country it would be best to give up a piece of ground wholly to the mulberries, and cultivate them as low bushes, so that the leaves could be readily handled. But what does experience teach?

FOREST PLANTING.—This is the great want of America, not the preservation of old forests, the half of which is but dead brushwood. Wherever forestry has been profitable in the Old World it has been by forestry planting, not by forestry preserving. The late Duke of Buccleugh had a sort of "gold mine in his Scotch forests." For the past twenty years he had 200 men, women and boys, and 20 horses, continually at work on forestry planting.

RAPID GROWTH OF THE SOUTHERN YELLOW PINE.—We have always maintained that the newspaper dread of a timber famine comes from ignorance of American forest trees, and from a study only of English forest literature. In that country trees grow slowly; in our country they grow rapidly. As soon as there is the slightest chance of a scarcity here, and that there is a profit in its growth, forests will be planted, and we can soon get all we want. The *Florida Dispatch* tells us that in good Southern pine lands so great is the growth of Pinus palustris, that in twenty-five years it is large enough to cut for timber. Instead of legislation to preserve old rotten forests, it will be to the profit of the nation to encourage the clearing as rapidly as possible, so that new planting may take their place.

FORESTRY FIRES.—These have again been serious. We are fully satisfied that the only plan to avoid them is to keep them clear of dead brush, and decaying undergrowth. All who keep these fire traps should be made responsible for damages. No man has a right to leave gunpowder scattered round where there is danger of an explosion, and hundreds of acres of dead brush make circumstances nearly as bad. But even paying damages

is not equal to prevention of the risk of carelessness. The sooner these old forests with their tinder magazines are cleared away the better. We want young and new forests, free from all these dangerous contingencies. When the old ones are gone it will be profitable to plant new ones. When it is profitable they will be planted. No amount of pressure will induce planting till there is a chance of profit. We are clearly of the opinion that the sooner the American forests as they now are, are totally destroyed, the sooner shall we have new forests that will really benefit the country. Millions of dollars of property now given annually to the devouring element will be saved, and forestry as a valuable art and science will take an honorable place among us.

THE CORSICAN PINE.—The Pinus Laricio is found one of the most valuable timber trees for places near the sea-coast in Europe; but because of its disinclination for transplanting, is not a favorite with planters.

THE CATALPA IN AUSTRALIA.—Catalpa speciosa has been largely planted for timber in New South Wales, and found to thrive wonderfully; is growing in popularity there.

THE LARCH IN THE WEST.—A few years ago there was much interest taken in the Larch as a timber tree in the West. Of late years we have not heard much. Can any of our readers tell as to its final success? Here in the East the impression gains ground that the tree is not as valuable for timber as it is found in some parts of Europe. Facts from experience would be valuable.

LONGEVITY OF THE BEECH IN ENGLAND—*Forestry* says the Birnam Beeches, so well known to students of English literature, are "obviously" more than 500 years old—probably "living at the Norman conquest."

THE BLUE SPRUCE.—European tree lovers seem to have lately given the name Blue Spruce to the Abies pungens of the Rocky Mountains. This tree is unfortunate in its names. At first it was supposed to be Abies Menziesii. When doubts arose as to its identity with the Pacific coast species of that name, it became Abies Menziesii Parryana—that is, a mere variety of Menziesii. Subsequently Dr. Engelmann regarded its differences wide enough to elevate it to the rank of a species, and it became Abies pungens. Prof. Parlatore does not regard the differences between Pinus and Abies worth generic distinction. With him they are all Pinus. As the Table Mountain Pine is Pinus pungens under the law of priority, a botanist who follows Parlatore will insist on giving our friend from Colorado a new name. Now as to its common name "Blue spruce," Abies Engelmanni of the same region, and many other Abies, are just as "blue" as this is, and confusion will certainly arise from its name. Worse than all, a variety of Abies nigra has been known for a hundred years or so in European gardens as Abies cœrulea, which has been translated "Blue spruce," and so we go. "Blue spruce" seems to us an unfortunate name to start for this plant, but it is probably too late to check it now.

GRAND OLD TREES.—The *Gardeners' Chronicle* truly remarks that we hear and know comparatively little about historical trees beyond the circumstance that they are said to be very old (not unfrequently twice the age they really are), and that they are also of immense size. The marvel is that people are not far more wonderstruck with the appearance of our forest giants than they are. With trees, as with men, few they are which escape the hundred and one casualties incidental to tree life, hence the comparatively small number of trees, however favored, that attain to old age and great size.

SUMAC.—This business, which received its first impulse in this country through the writings of Dr. J. H. Houghton in the GARDENERS' MONTHLY, has, especially at Petersburg, in Virginia, reached large proportions and become a very important industry. The receipts of leaves this year will aggregate over 7,000,000 pounds. Three large factories are kept in constant operation, and their products find ready sale. The Virginia sumac is said to be the best in the market, and has latterly superseded the foreign article. Many hundreds of country people make their living in the summer and early fall seasons by gathering the leaves, and for hundreds of miles around the country contributary to the Petersburg market.

LONGEVITY OF TREES.—A table recently given by the *Revue de l'Horticulture Belge*, as to the age of trees when their timber is of the most value, gives us also an idea of the different periods at which trees mature in the Old World and in this. Black Walnut, 250 to 300 years; Royal Oak, 250; Quercus alba—we suppose the American White Oak grown in Europe is intended—200; European Sweet Chestnut, 200; American Chestnut, 180; European Linden, 125; Broad leaved or Dutch Linden, 90 to 100; European Beech, 90 to 95; Scotch Pine, 90; Norway Spruce, 95; White Wil-

low, 40; Sycamore Maple, 50; Alder, Cherry, Poplar, &c., 50 to 60. We believe those marked in the list over 100 would not be worth much in this country after that time.

WEST VIRGINIA FORESTS.—During last September and October Col. Geo. W. Shutt, of the U. S. Geological Survey, examined the southern and eastern portions of West Virginia, with especial reference to the distribution of timber, its economical value and the facilities for transporting it to market by the streams of the region. He traveled over 1,000 miles by wagon, and 200 on horseback, and expresses the opinion that nearly one-half of the State is covered with original forests, the value of which, if rendered marketable, would amount to billions of dollars.—*Science.*

SCRAPS AND QUERIES.

ALASKA AND ITS FOREST PRODUCTS.—A friend sends us a government document, and marks a passage with a query.

"Alaska is the great reserve timber region of the United States. It is only a question of a few years when the forests of Maine, Michigan, Wisconsin, Minnesota, and even Puget's Sound, will be denuded of their timber. Then the country will appreciate those thousands of square miles of yellow cedar, white spruce, hemlock, and balsam fir, that densely cover the southeastern portion of Alaska."

We can only say that, like much of the work of this class, there is much that is sound and much that is not. There are two parties in regard to Alaska. One would keep it just as now, a monopoly for a commercial Sealing Company. It is easy to see their handwork in government documents. To them Alaska is good for nothing at all. Another party would do with it as we do with the rest of our country—give it a government, so that people could settle there if they wanted to, and have some protection in their rights to life and property. This class, in their antagonism to the other, color things too brightly. It is one of the latter class that gives us the paragraph quoted. Now Alaska, at least southeastern Alaska, has a climate remarkably favorable to arborescent growth. There is certainly no climate in the United States more favorable to the growth of trees. But this very fact has had the effect of giving such power of endurance to the trees, that few of them ever die young, and all grow up like grain on a piece of farm land, and consequently there are thousands and thousands of acres of mature forest which would not give a single saw log. They are too thick. There are a few places where very fine timber is found. At Kaigan the writer went through a fine tract where the principal trees (of Abies Sitkensis and Abies Mertensiana) might have averaged about twenty feet apart, and then there were specimens found twenty-one feet in circumference, and perhaps 150 feet high.

The fact is, when the "forests of Maine," etc., are exhausted, we shall have to go to work at forest planting. It will be a great gain when these natural forests are all gone. The millions of dollars we annually lose by forest fires from the vast amount of half dead materal which now feeds flame, will be a thing of the past. Alaska will be an admirable State for forest culture, but its uncultured forests are not worth much from a timber point of view.

REJUVENATING AN OLD WOOD.—A Delaware county, Pa., correspondent says: In the MONTHLY you have an interesting department of "Forestry," and I would thank you to ask under that head for counsel, from those who have had experience, for resuscitating an old and ragged wood, where former owners have cut off the best timber, and winds cattle, and neglect, have done much to spoil the rest; and yet as a rough piece of land adapted and best suited to be covered by timber, what kind of trees to plant to fill the ugly gaps, and how to make them grow? I have such a piece of wood, and as it is well located for timber and just where woods ought to be, I concluded to restore them by planting. Part is wet, and part hilly. Having an ambition for the best, I have tried to re plant with oaks. We all know this tree is uncertain of success. The young trees that stood transplanting, and lived, are at once attacked by a beetle. It stings the oaks in spots; starting near the earth, and going up the trunk six to eight feet. The tree at once bleeds profusely. This is followed by a ragged break longitudinal. On cutting into it the wood of the trunk is black and dead, some distance in from the bark, and a dead spot, showing plainly to the eye, follows, and spreads rapidly up and down the trunk. Death of the tree surely follows, and no oak seems safe, even if it has lived and grown for two or three years. I presume there are not now living in my woods more than one in from eight to twelve of all I have planted. I have persevered for four years, and I must confess the beetles hold their own, and I must select some other trees. And the question I would ask, what are the sorts of trees recommended by

others who have tried to perform the same task? I am in a section of country where the oak grows freely, and in some pieces of timber profusely. I don't like soft maples and such trees, of small value for timber. I prefer forest trees, if such can be induced to grow. It is quite likely some one has tried the experiment I am undertaking, and knows of some better means of success.

THE HORSE-CHESTNUT.—A correspondent sends us the following from the *West Chester Local News*, and asks our opinion:

"The extract of horse-chestnut taken internally and in sufficient quantity, produces on the healthy organism all or either of the fearful catalogue of diseases that human nature is subject to. I have proven, and am most deeply convinced, that the same effect is produced by inhaling the damp air from the tree, which, being brought in direct contact with the blood through the lungs, produces one of the most terrible kinds of blood-poison. The great peculiarity of this is, that, as the system takes it in, it stealthily closes the pores, as well as every other avenue of human life. It then brings forth and develops the various forms of indigestion, rheumatism, heart disease, Bright's disease, lung and nervous affections in all their varied forms, according to the temperament and conditions of its victim. And now, if I could but awaken the people to the importance of cutting down and removing so dangerous a plant, my end will be accomplished. West Chester can easily spare the shade, for there are far too many trees for the health of the inhabitants."

The greatest nuisances in the world are the average health reformers, that happen to get the free run of a local newspaper. To read what they say, it is a wonder any human being lives over twenty-four hours after reading what they tell us of the dangers we run. No doubt a poison can be extracted from a horse-chestnut tree. We can probably get oxalic acid enough from half a dozen stalks of rhubarb to kill a man, yet one may eat half a dozen stalks in a pie and thrive on it. Probably a few dozen peach kernels will give more Prussic acid than any of us would care to take, but we have known lots of them put into cookery without harm. Even the deadly Upas tree has lost its terrors for those who have got acquainted with it; and we fancy that when our Bright's diseased correspondent of West Chester gets to know the horse-chestnut tree better, he will look to whisky or some other indulgent friend for the true cause of his imperfections.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

CALTHA PALUSTRIS.

BY W. F. BASSETT.

Perhaps the reason why this plant does not spread more near Philadelphia may be found in the soil or climate. It is extremely abundant in some localities in western Massachusetts, and seemed to flourish most in cold, springy, or wet, mucky soils. It was not found at all in the immediate neighborhood where I lived, and I planted several in coves and low places along a stream, and they remained nearly in statu quo for several years, with no increase in number. When two or three of them were removed to a low, marshy piece of ground, where a small stream of water flowed slowly over the level surface among the scattered grass and scanty growth of small trees and shrubs, so that one could not walk on it without going over shoe in water, I very soon had the satisfaction of seeing hundreds of seedling plants spring up. The cowslip, as it was called in Massachusetts, was valued highly for greens, partly because it was much relished by many persons, and partly because it was the first plant that could be used for this purpose in spring.

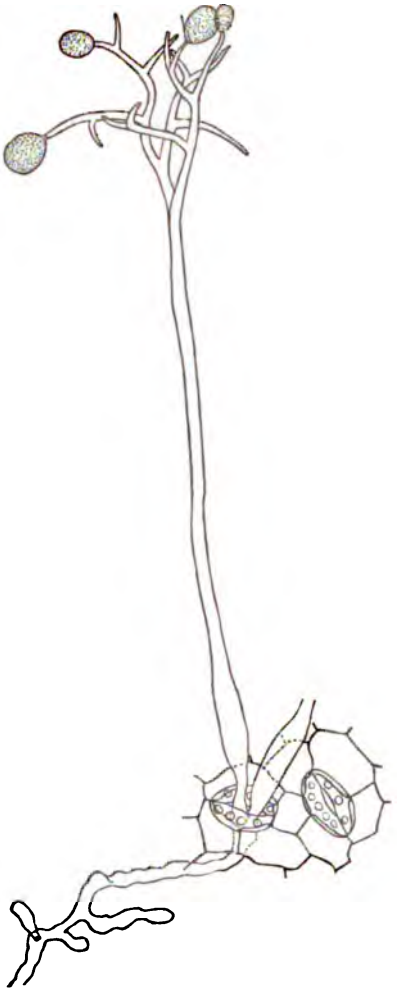
Hammonton, N. J.

THE PHILADELPHIA ROSE ROT.

BY PROF. WILLIAM TRELEASE.

Mention was made in the GARDENERS' MONTHLY for March (p. 74) of a disease that has proved very destructive during the past winter to the leaves and young shoots of greenhouse roses. Some specimens sent me by Mr. Meehan show that the trouble is due to a fungus related to that

which causes the potato rot. Most of the leaves sent me were soft and flabby, and very tender, as if beginning to rot. At first no other unusual appearance was evident, excepting a brownish, unhealthy color; but a hand lens shows that their lower surface is covered in places with a fine gray mold, which is nowhere very plentiful, but forms



Peronospora sparsa.
(Berkeley) from leaf of cultivated rose (x350).

scattering little tufts just visible to the naked eye. Under a compound microscope these tufts are found to consist of slender threads .3-.5 min, ($\frac{1}{75}$-$\frac{1}{125}$ inch) high, which are straight and unbranched to near the top, where they fork regularly five or six times, the long, curved branches ending in round or slightly oval spores, measuring .013x.0165 to .016x.02 min. (.0005-.0007x.0007-.0008 inch). The threads, which are .006-.013 min. (.0002-.0005 inch) in diameter, come from an irregular mycelium in the leaf, and emerge through the stomata singly, or in clusters of two or three, rarely more. They are grayish, while their spores, which are very numerous, are decidedly gray, and form the most noticeable part of the fungus. On very badly diseased leaves they appear abundantly on both surfaces, coming up through nearly all the stomata. The figure gives an accurate representation of both the mycelium and fruiting plant, magnified 350 diameters. This fungus, which is now reported for the first time as causing a serious disease in this country, was noticed a few years ago on wild roses in California. It was first studied in England, where it was destructive to winter roses in 1862, by Dr. Berkeley, the eminent president of the Royal Horticultural Society, who described it in the *Gardeners' Chronicle* for that year (p. 308), under the name Peronospora sparsa. Wittmack also found it very injurious in the rose houses of Lichtenberg, Germany, in 1876 and 1877*. The disease is spread in two ways: by bits of mycelium in cuttings taken from affected plants, and by the conidia or spores, which grow directly into new mycelia. No resting spores, like those of the lettuce and grape molds, have ever been found. Sulphur promises little relief, for it is already used on roses by most gardeners to keep down the true rose mildew. If the red spider will allow it, growing the plants in a dryer house may be beneficial; but the only treatment that is at all likely to be of value is to thoroughly destroy every branch that bears diseased leaves, cutting it back some distance below where it appears perfectly sound, and carefully dropping it into a pail of water containing some disinfectant, such as a little corrosive sublimate, from which it may be removed to the fire. If the disease reappears at once, the entire plant is affected, and ought to be destroyed. Care should be taken to prevent the introduction of diseased plants of anything from the greenhouses where the fungus is known to exist. *Madison, Wis., May 9, 1884.*

CALTHA PALUSTRIS.

BY PROF. GEO. G. GROFF.

In the June number of the GARDENERS' MONTHLY, this plant is said to be rare around Philadelphia. I have found it quite abundant in restricted areas

*Wittmack: Sitzunzsber, Ges. naturf. Treunde zu Berlin, June 19, 1879.

in Chester county. In some of the central regions of the State, I find it really very abundant. Another plant, Cypripedium acaule, Darlington in his "Flora Cestrica," says is rare around Philadelphia; but I have found it abundant on the North Valley Hill, in Chester county. Obolaria Virginica is also abundant enough, in the very restricted areas. *Lewisburg, Pa.*

EDITORIAL NOTES.

DESTRUCTIVES AT HARRISBURG, PA.—Harrisburg seems to be an unlucky place, if a "treatise on insects" from that quarter, which is now before us, is to be fully credited. The people there do not seem to do as they ought to do, the writer seems to think. He tells us that he learned in Cincinnati, in 1867, that by placing marble dust the full extent of the branches on the ground under a plum tree, the result will be perfect security from the curculio. Now it seems to us that if the gentleman has faith in what he tells the Harrisburg people, it would be a very profitable thing to invest in a plum orchard and treat it on this plan. But it is easier to preach than to practice, except where medicine is concerned. The gentleman takes care to tell us in this treatise on insects, that he is a physician, and that "over 3,500 persons have visited my office in 17 months, who, with a few exceptions, have been ill for years." As this makes six every day without counting the number "over," and this is but one physician; if we could only get at the long list that visit others, and the list who are too sick to visit and have to be visited, it would seem that Harrisburg, between politicians, insects and physicians, must be a frightful place.

CLOVER IN NEW ZEALAND.—In the *American Naturalist* for June we learn that, "1st, no clover does produce its seeds in this colony (New Zealand);" and "2dly, some varieties are more fertile than others." How any variety can be called fertile in any sense, if "no clover does produce" any seed, is difficult to comprehend; but we have long ago shown that very much that appears in scientific serials about clover in New Zealand is not very reliable.

ORIGIN OF THE WORD FOX-GLOVE.—An English author terms the man a "miscreant" who "changed the word fox-glove from its original folks-glove—meaning a glove for the fingers of fairies." The original inventor of such a name would be also somewhat of a "miscreant," for what fairy finger would want so huge a covering as a flower of a fox-glove? The probability is that the orthography of the original term has been so wholly changed, that the idea represented by its name has been wholly lost. The bell-shaped flowers would be certainly suggestive, and there may have been an ancient name sounding like "glove," which signified bell—and then "fox" might originally be "folks"—then we should have folks' or people's bells—and this guess we fancy is as good as any other. Among the French peasantry it is known as the Virgin Mary's fingers and the Virgin Mary's gloves; more sensible than foxes' or fairies' gloves, to say the least.

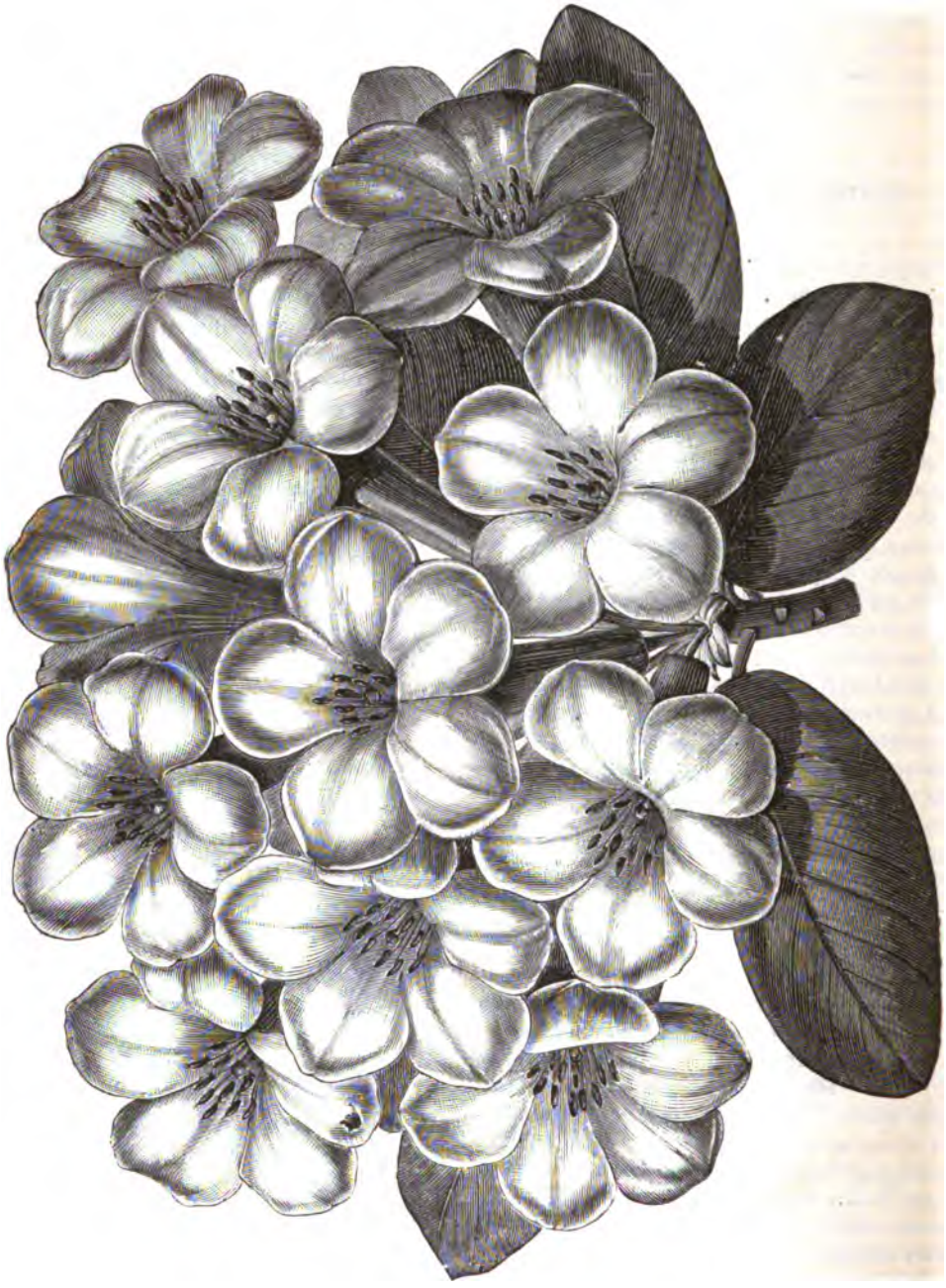
Another reason for not regarding "glove," meaning what we understand as glove, to have been the original idea, is that gloves were scarcely known among the common people of England till about the year 1300,—while such a prominent plant as this must have had a common name long before this.

A CURE FOR INJURY FROM THE POISON VINE.—The *American Agriculturist* tells us that a dose of Epsom salts is a good cure for poisoning on the hand or arm by the poison Rhus. No, thank you! A fair exchange is no robbery; but we could not think of exchanging the poison for a dose like this. We shall stick to the poison every time.

RHODODENDRONS.—The most superficial observer believes he can tell a Rhododendron from an Azalea, but he judges from appearances, and appearances are often deceitful. The botanist can draw no line. The Azalea was once confined to those which had five stamens, and Rhododendrons to those with ten; but there are Azaleas with more and Rhododendrons with less than ten stamens; that is to say, kinds which the superficial would call Azaleas or Rhododendrons, but the botanist now calls them all Rhododendron. But we suppose the florist will find it very convenient to divide them, and long yet the deciduous forms will be known as Azaleas and the evergreen ones as Rhododendrons.

Geographically, what we know popularly as Rhododendrons are natives of our own continent, and are mostly hybrids raised from R. Catawbiense hybridized with the solitary European species R. ponticum. But the temperate parts of the East Indies have a beautiful class known as greenhouse Rhododendrons, which are very varied and showy, and many of them delightfully sweet-scented. We

give with this an illustration of one of these, and it will be seen that if the artist has thought it worth while to be scrupulously accurate, there are



Rhododendron Pink Beauty.

more than ten stamens in these, and the flowers are much more tubular than those of America. This particular one is, according to Wm. Bull who introduced it, "A remarkably beautiful hybrid, producing immense trusses of fine large flowers of a delicate soft pink color, with long blush-white tube. This handsome hybrid belongs to the perpetual-blooming section of greenhouse Rhododendrons."

SCRAPS AND QUERIES.

WINTER AT RICHMOND, INDIANA.—Mr. Case says: "Last winter was very hard on many things that heretofore had been quite hardy with me. For instance, the form of Catalpa you proposed to call C. bignonioides nana, or that sold in our nurseries under the name of C. Bungei, never was injured before, but this spring it makes a very sickly attempt to vegetate."

ABNORMAL STRAWBERRY.—Prof. Groff notes: "Roses are sometimes seen with the stem growing beyond the flower. This spring some one sent me a strawberry in which the stem had continued to grow beyond the fruit. Has this been often observed?"

[It sometimes occurs. The fruiting stem of a strawberry is simply a metamorphosed runner, which has become erect, and hence, a short stem may appear from a flower head, just as it would beyond the young plant on a runner.—Ed. G. M.]

FREAKS OF NATURE.—Wm. Bassett, Hammonton, N. J., says; "I have several times observed a secondary flower stem growing from another, on geranium Dr. Lindley. These were always smaller than the original cluster, but produced leaves and could be used for propagation the same as other portions of the plant."

[It may be worth while to note that a flower stem is only a modified branch, and, when not perfectly reduced from a branch to a flower stem, may produce weak branches, as if it were a perfect branch. Indeed it is because of just such occurrences as these that the morphologist is able to lay down the law that a flower shoot is but a modified branch, for no one has been able to get down to the beginning of the transformation.—Ed. G. M.]

QUERIES ABOUT ROSES.—"L. B. C.," Richmond, Indiana, says: Have you ever had any satisfactory experience in growing the seed of the Moss rose? Do they come true with any degree of certainty? or do they produce seedlings similar to the original type or parent (of the Moss) rose. I infer, after reading "Parsons on the Rose," that the character is constant, and can be imparted to climbing or, in fact, any other variety of roses. Still the fact remains, that they do not seem to succeed, or are not worthy competitors to other and more desirable sorts. I have often been told by naturalists that the roses in the far north develop and mature very large and edible fruit (hips). What species is it that produces them, and how far north did you see them last summer? Please give us in the MONTHLY your observations on them as a fruit in Alaska. I am afraid you have not told us near all you saw in Alaska of horticultural interest. Of course only a very limited number of the readers of the MONTHLY will ever see that country, and we are all anxious to know of the vegetable wonders you saw there.

[The Editor has not seen Moss roses seeding, except perhaps Wm. Lobb, which is but an apology for a Moss at any rate. But very often a kind barren in one part of the world will be fertile in others, and they may seed freely in some places.

It is now known that most varieties of plants will reproduce themselves from seed, and we have no hesitation in saying that a Moss rose would yield Moss rose seedlings.

The kind referred to by literatists as producing edible fruits, is the Rosa canina, or Dog rose. It is sweet and very palatable, but the fuzzy bristles about the seeds make some care desirable, and in the language of a sportsman, we regard "the game not worth the powder."

The fruit of Rosa cinnamomea—the Cinnamon rose—grows very large in Alaska, and constitutes one of the many ornaments of that lovely species. They are often as large as Damson plums; but the writer did not think to taste them. Some authors think the prevailing form in Alaska as distinct from R. cinnamomea, and describe it as R. nutkana. It was found north as far as the writer reached, in the vicinity of Mount Saint Elias, and no doubt extends much further, as here it was in the track of a receding glacier.

One of the prettiest wild roses of that part of the world is Rosa gymnocarpa, as far as the plant and fruit are concerned. The leaves are finely divided—not much coarser than the Austrian briar. The fruit is small, not much larger than a good sized holly berry, but with the bright, holly-berry tint. They are freely produced, and a bush four or five feet high is extremely attractive. This species, however, was not found in Alaska, but on the boundaries in British Columbia.

The Editor regrets much his inability, for want of time, to write more than he has done about this beautiful land. He promised some friends that on his return he would do what he could to obtain a government for this interesting spot, and much of the time he could spare for Alaska subjects the past winter has been devoted to that purpose. Alaska has at length got the government it ought to have had long ago; and now he is not sure but humanity will regret that the task has been done. The class of people who are clamoring to rule, are

not the ones who are fit to help an Indian along. The Alaska Indians, of whom there are probably fifty thousand, are anxious to learn and be civilized, but they want to learn something that will be of use to themselves. The men who go there to teach are utterly unable to grasp the Indian character, or to appreciate an Indian's wants. They offer something the Indian does not want, and would be little good to him if he did want; and it is this inability to reach the Indian's comprehension, that causes most of the troubles we have with them. When they understand that a live white man is of more value to them than a dead one, the white man is perfectly safe in their hands. The feeling that the white man has the best of the bargain is bound to irritate them. The writer found them quite willing to experiment with gardening, glad to get seeds and raise vegetables and flowers. Some horticultural missionaries imbued with a self-sacrificing missionary spirit, would work wonders among these simple children of the northern forests. Men like Duncan at Metacahtla can work wonders; but what will be those who will flock there now?

LITERATURE. TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

CONDITION AND PROSPECTS OF AMERICAN GARDENERS.

BY SEMPER B. FAIRSQUARE.

When we review the different countries, in which modern gardening is practiced, comparing the chances and the social position of gardeners with what they have to expect here in the land of the free, the result is not altogether encouraging nor flattering.

A man who indulged for a number of years, perhaps the best of his life, in the belief that gardening is an inseparable companion of civilization and is sure to become everywhere, after the first necessities of society have been supplied, an honorable and remunerative calling, worthy of an intelligent man's devotion, may finally find out that this belief was somewhat delusive. Examining the majority of the class he is supposed to belong to, their social rank and average compensation, he will find that he has got amongst the order of minorum gentium, and he must be a philosopher if he can take himself by the nose, thinking: serves you right; otherwise he must feel bitterly disappointed, nay miserable. Why is it, that so great a number, perhaps the majority of "hired" gardeners are so dissatisfied with their lot? Should the blame indeed justly be laid all to them? I think not. There are undoubtedly many who are gardeners only in name and really know, as Downing said, "little beyond the mysteries of cultivating that excellent plant, the Solanum tuberosum." But there are also employers, who are gentlemen only in name, whose gardeners in every respect, apart from money, are their equals, if not their superiors, taking their moral and intellectual qualities all together.

It is just this class of gardeners' which has less chance here than the former. Why this is so may be found out, but it is yet a public secret. No one dares to divulge it openly and publicly; it is whispered over the fence into the ear of the discreet neighbor, who with a significant twinkling of the eye says, that he always thought so.

We have meters for everything, chronometers, lactometers, dynamometers, alcoholometers;—the latter invented by Tralles, a clever Frenchman, who after inventing a meter for the spirit of distillers ought to have invented a little machine, which gardeners might carry in their pocket, when going after a situation, to ascertain the true spirit of gentlemen or those who wish to pass themselves for such. A cheap little apparatus of that description might be found very useful by a good many others than gardeners, who have to work for a living. For without it, whether or not the article be "proof," can only be found out after some experience has been gained by tasting. Both the genuine and the spurious article, are embaled alike and ride in the same carriage, with the same labels stuck on.

A good deal derogatory to gardeners has been

said by both gentlemen and others, but justice demands that *audiatur et altera pars!*

As little as a man of bone and muscle, willing to work, is therefore able to perform the higher duties of a gardener, so little is a man of property and money, willing to pay for what he gets, therefore able to perform the higher duties of a gentleman. It is not he, a gentleman, who knows how to exact of others everything he deems due to himself, but he, who never forgets what he owes to others. And this is not always money for "value received," but it is paying respect, where respect has not yet been forfeited. By what right, for instance, do employers call the gardener by his Christian name, like a boy? It is this, an offensive familiarity, which is only permitted to relatives and special friends after a long and intimate intercourse. That planters adopted that custom with their slaves may, like many other things appertaining to slavery, have been proper and natural, but even in the land of liberty it is making a little too free.

One who wishes to secure a respectable and intelligent man's faithful services exclusively to himself must be both able and ready to situate and treat such a man in a manner calculated to win his attachment. The chilling question "Don't I pay you?" often addressed to gardeners, disapproving of a foolish notion to be carried out, may be excusable with a menial, hired for an occasion, but it is certainly maladressed, when offered to a man who is expected to manage faithfully a considerable portion of the property, and not only to minister to, but to anticipate, his employer's comforts and pleasures, which are of a more refined and superior character than those derived from a cook or coachman;—two important dignitaries on every place, whom the gardener must avoid to offend, by not cultivating their acquaintance.

I have also read and heard a great deal, especially at meetings of horticultural societies and in periodicals, about what men should all do to make themselves desirable gardeners, but of what men should do to make themselves desirable employers, I never saw anything in print, nor ever heard it intimated in any remarks upon the "State and Prospects of Horticulture;" "Hints for Young Gardeners;" "On the Improvement of Gardeners, or "Scarcity of Good Gardeners." All of which have appeared in the magazines.

Having frequently taken especial pains to ascertain the causes of gardeners leaving places, where I supposed a good man had a fair chance, judging from the known wealth and the social position of the proprietor, I found upon close investigation, in most cases, that the original, the fundamental fault, was the employers'. Some of these had even succeeded in getting themselves and their places into such bad odor, that no gardener would advise another to go there, and so the place went from bad to worse. Visiting occasionally florist and nursery establishments, when looking over a space and stock, the smallness of which indicated small income, close economy and slow progress, I find the fable of the wolf and the dog illustrated; for none of these men were ever found disposed to swap horse with any gentleman's gardener in the country. And is it not a significant fact too, that no Americans present themselves as candidates for such situations, which in many cases are only sought for by foreigners of inferior quality, or such as have, through adverse circumstances, no other choice left to them? There seems indeed to be something like degradation connected with the position of a "hired" gardener, for when there is a farmer on the place his position is invariably above that of the gardener, who is generally looked upon by the domestic servants as one of them.

Why gardeners should not be competent to direct here in America, as they do in other countries, both the farming and the gardening on a place, consisting of but a few hundred acres at best, I never could understand; and it must be clear to every intelligent mind, that the two-headed system is no more an economical than it is a necessary one; because the places are mostly too small to actually require and to cover the expense of an extra farming force; and when the gardener is not competent to manage it economically he is certainly not a head gardener.

How many gardeners get as much as a hundred dollars a month—the average earning of a good mechanic? As far as I know, very few. Do then gentlemen, entertaining such a high opinion of their own smartness, dignity and knowledge of human nature, really imagine that a man, capable of performing and carrying through the various and multitudinous details of operations in any establishment, where fruit, flowers and vegetables are required, both in and out of season, to say nothing of other affairs which he often has to take charge of, would come; and if he does, stay for the monthly pittance, held out as an inducement, to forsake the chances, commodities and general agreeableness of a town and a neighborhood, for a life of drudgery in the country, which has not even the advantage of being cheaper? And, when the man

is married, as he is sometimes especially desired to be, what chances has he for his children, if he is permitted to have any? We know it to be a fact, that employers want married men, but no "encumbrance."

It would perhaps do no harm to the state and prospects of horticulture, if some one competent would write a series of essays on "The Improvement of Employers," "Scarcity of Good Employers, or "Hints for Employers;" for one of which we would suggest that, if gentlemen will have better gardeners they must do, as we all have to, if we want better teachers for young America, that is, hold out better inducements.

EDITORIAL NOTES.

TO INTELLIGENT CORRESPONDENTS.—*All communications relating to advertisements, subscriptions, or other business, must be addressed to the publisher, 814 Chestnut Street, Philadelphia.*

All referring to the reading matter of the magazine must be mailed to the editor, Germantown, Pa.

No express packages for the editor received unless prepaid; and marked "Paid through to Germantown, Pa."

SENDING PLANTS TO EUROPE.—A correspondent from Massachusetts writes of a box of plants being sent to Europe, and which were returned to New York with the statement that they were not permitted to land, and inquires, "what new law is this?"

It is to guard against the introduction of Phylloxera from America, which these countries have in immense quantities everywhere already. The law is just as if we were to forbid importations of plants to our country, for fear of introducing May weed, dandelions, or Canada thistles. The "new law" was probably concocted in some lunatic asylum, and though it is somewhat annoying to us, it serves at least to show that the great wisdom which we are sometimes told characterizes monarchial governments as against republican systems, is the veriest nonsense ever uttered.

A SWINDLER CAUGHT.—A sharper who represented himself to be "Harry Nugent, formerly with Stone & Co., and now a nurseryman near Media," has been victimizing the seedmen and florists of Philadelphia by buying goods to the amount of $10 or $20, paying for them in checks above the amount of bill, getting the difference in cash, and, when the goods got to their destination, no such person could be found, or even the bank on which the checks were drawn. The poor gardeners who gave a stranger $2 for horticultural magazines a few years ago, were laughed at by the knowing ones; and now these in turn are laughing to think that those who would never trust a stranger with money—oh! no, never!—will yet trust such strangers on a check. The sharper is in jail. The fate of this fellow was free board for six months.

TRUFFLES IN AMERICA.—While we are waiting to know of a certainty whether the truffle has been found in the Atlantic portion of the United States, and are rather inclined to decide that they have not, they have certainly turned up in California. Dr. H. W. Harkness, a distinguished mycologist of San Francisco, exhibited some at a recent meeting of the Academy of Sciences there. This is therefore beyond doubt.

OZONE AND VEGETATION.—Ozone is now conceded to be the great purifier of the atmosphere, and plants are known to produce ozone. One of the greatest discoveries of the day, is that of Dr. Anders of Philadelphia, who finds that the leaves of plants have nothing to do with it,—but that flowers alone produce ozone. Flowering plants will therefore be of inestimable service in sick and sleeping-rooms,—and we have also a reason why in the wonderful wisdom which rules the world, flowers are blooming somewhere at all seasons, and at every hour of the day and night.

KNAVES AND FOOLS.—These are the epithets the *Gardener's Chronicle* uses in a paragraph replying to the complaint of "a swindled one" who invested twenty-five cents in response to an offer of one hundred seeds for that small sum. It happened that the purchaser got the one hundred seeds, but not the expected one hundred kinds. It appears the buyer expected to get something for nothing,—but nothing for something was the result, and then he appealed for newspaper sympathy, with the result above hinted at.

THE FIRST APPLE TREE IN BRITISH COLUMBIA.—It may be worth recording that the first apple tree was raised at Fort Vancouver in 1826. It is said that the tree is still standing there.

ROBIN ADAIR.—On the grounds of Glencormac, a beautiful estate near Wicklow, in Ireland, are some grand old yew trees, under which the *Gardener's Chronicle* narrates that, it is said, many years ago, the well-known song of "Robin Adair"

was composed by a Scotch lady who had fallen in love with the lord of the soil, the property then being in the hands of the Adair family, and known as Grove Hill. It was at this very spot the love-sick lady composed those touching verses, which so plaintively told of her woe at her lover's change of feelings towards her.

ANCIENT HORTICULTURE IN AMERICA.—Mrs. Jeannie C. Carr says that the early Spanish discoverers found gardens of unsurpassed beauty in portions of the New World. The Aztecs of Mexico were enthusiastic gardeners, and traces of their work have been found among the ruins of their villages.

THE PEACH—Amygdalus Persica—is, according to the common opinion, of Persian origin. Diodorus Siculus says that it was carried from Persia into Egypt during the time that Cambyses ruled over that country. It is supposed to have been transported from thence into Greece, and after a lapse of time into Italy, where it only began to be known about twenty years before the birth of Pliny, that is, about seven years before the Christian era, and it appears that Columella was the first to treat of its cultivation there. According to Nicander, it was brought to Greece by the agency of Perseus from Cepheia, a locality affirmed by some to have been in Persia, by others in Æthiopia, or in Chaldæa. The peach is also spoken of by Theophrastus, Dioscorides, and other Greek writers. We must, therefore, conclude that this fruit was well known in the East very long before its introduction into Italy. Many ancient writers, including Athenæus and Pliny, and more recent ones, as, for instance, Marcellus Virgilius, in his "Commentaries on Dioscorides," confound the peach with the persea, a fruit the identity of which is uncertain, some supposing it to be a Cordia, others a Balanites. Macrobius again confounds the peach with the persicum of Suevius, which is the walnut, and with that of Cloatius, which is the citron; all fruits resembling the peach in nothing but in the name, a clear proof that it cannot have been in their days by any means a common fruit. How few were the varieties of peach known to the ancients appears from Dioscorides, who only names two, from Pliny, who enumerates five, and Palladius four only, giving, at the same time, accurate information on the mode of cultivating them. Although all the evidence collected by Professor Targioni tends to show that the peach was, originally, brought from Persia, and he, therefore, does not consider it necessary to proceed further with the investigation; yet, no traveler whom we can rely upon, has ever found it growing really wild there or anywhere else. We are left in doubt whether its native stations remain yet to be discovered, or whether its original wild type must be sought for in some species of Amygdalus known to be indigenous in the East. It has been more than once suggested that this original parent is no other than the common almond, a conjecture founded, perhaps, on the similarity in the leaves, and in the perforations of the endocarp, but rejected as absurd by those who attach even generic importance to the succulence of the indehiscent pericarp. This point cannot be decided with any degree of plausibility until we shall have a better knowledge of the different forms which the fruits of the wild Amygdali may assume under various circumstances; but we may mention, as circumstances in some degree favoring the supposition, that some kind of almond is the parent of the peach, the ancient tradition referred to by Targioni (with the remark that is contradicted by Pliny, and by common sense) that the peach in Persia was poisonous, and became innocuous when transported to Egypt, and the case quoted of a supposed hybrid raised in 1831 in Sig. Giuseppe Bartolucci's garden, at Colle di Val d' Else, from a peach stone which produced fruits at first exactly like almonds, but which, as they ripened, assumed the appearance and succulence of peaches, whilst the kernel remained sweet and oily, like those of almonds. We might also refer to some bad varieties of peach with very little juice to their pericarps, although we do not know of any which assume the flattened form of our almond, a distinctive character which appears to us to be of considerable importance. The foliage and flowers of the two trees show little or no specific difference. —*The Garden.*

HISTORICAL JOTTINGS ON VEGETABLES.—The aboriginal inhabitants of Britain appear to have done little or nothing in the way of plant-culture with any object. It was after the arrival of the Romans that the subjugated Britons began eventually to follow the fashions of Italy, and those who could formed flower gardens and orchards; kitchen gardens perhaps, one has to add, since the Romans were "no great shakes" at the cultivation of vegetables for culinary purposes. In the matter of fruits we all know our great indebtedness to them. They introduced new species, they also improved upon others that were growing wild in our extensive forests. The fig, pear, plum, cherry, quince, apricot, peach, chestnut, and walnut

are only a part of the fruits the Romans have been credited with, but they did not add much, if anything, to the English kitchen garden. Demand creates supply, as we are aware, and the Roman fashions in regard to meals, even during their grandest days, were rather peculiar. De Quincey has proved beyond question that their jentaculum and prandium translated by us as "breakfast" and "dinner," were meals of a shadowy kind—a slice of bread or biscuit, eaten anywhere, flavored by a fig, a date, or an olive. The cœna or supper was the sole substantial meal, consisting of several courses. One course was all fish usually, another all fruits, but vegetables did not occupy a place of importance in any. Some dishes of broth or stews were, however, flavored with herbs, and the vigorous stomachs of the Romans relished onions, leeks, and garlic. In two of these our taste is, on the whole, not at all in sympathy with theirs.

During the unsettled times when Dane and Saxon contended for the mastery, gardening was not much attended to in England. We know that many plants which had been introduced by the Romans were lost sight of. The preponderating population—the Anglo-Saxon race—had no particular genius in this direction, and it was not till after the Conquest that the London citizens appear to have turned their attention to the raising of vegetables for the table. That city, from its position as the chief resort of visitors and the abode of the Court, was sure to take the lead in all matters of progress. Undoubtedly the English got some valuable hints from over the Channel, nor should we be reluctant to acknowledge our early horticultural obligations to our French neighbors. We have not failed to make them returns; indeed, at one time it was remarkable how eagerly every English method in gardening was examined and acted upon by the French gentry.

Subsequent to the Conquest a great impulse was given to all branches of gardening by the Crusades, which opened up more frequent communications between the countries of Europe and parts of Asia. Then, again, the palmers and pilgrims in their peregrinations often carried from one monastery to another the seeds or branches of some plant that was a novelty, which the monks would carefully cultivate in their small but well-tended plots.—*Journal of Horticulture.*

BAST, OR RUSSIA MATS.—The lime abounds in some forests in Russia. By means of maceration in water the fibrous portion of the bark is separated, and divides easily into thin layers. These are used for making ropes, cordage, sandals worn by the peasants, and mats, which Russia exports on a large scale, and which are used in different countries as packing material, and also for covers and carpets. The collection of the lime bark is thus effected: The trees are cut when they are from eight to sixteen years old, at a period when the sap is most active and the bark is detached. It is cut into longitudinal strips, which are first raised with a peculiar shaped knife, then torn off by the hand and laid out to dry. Two or three stripes are placed one upon the other for drying, and attached at each end to stakes, which keep them extended. In order to make use of them they are soaked in water, the different cortical layers then separate one from the other; the inner ones are most esteemed, the outer layers being thicker and less pliable. The strips thus detached from the trees are two or three metres in length. In some parts of Russia the entire population go to the forests in May and June, the time at which the bark separates with the greatest facility. The villages are then almost deserted, all the inhabitants being occupied either in barking the lime trees, or in making the mats. The wood is immediately converted into charcoal. In some places the sap is evaporated for the sugar it contains.

The cordage made from the bark of the lime tree is used in some parts of France for buckets in wells, and to hang linen upon, which it never soils. It does not rot so readily as hempen cord, but lasts much longer. In Sweden fishermen make their nets from the inner layers of the bark. But the main use of this bark is for the manufacture of mats or matting. These are used to pack heavy and bulky goods, such as furniture, machines, etc. In England they are much sought after by gardeners, who use them in large quantities. The mats made in Russia are usually two metres long by about one metre in width. It is estimated that, on the average, 14,000,000 are made annually. The fourth part of these is exported, the rest are used in the interior. In 1853 England alone imported 657,000, at the price of 150 fr. per 100.

In France the lime is chiefly cultivated as an ornamental tree for parks, public gardens, etc., and it would not be thought of as likely to yield an industrial product. It is worth while, however, directing attention to the remarkably thick bark of this beautiful tree, which contains a large quantity of fibre. The Silver lime (Tilia argentea) is a magnificent tree, which produces a fine effect in gardens, with its leaves covered below with a

silky-white cotton. This tree grows rapidly even in poor soil. The bark of the young branches is very thick. We suggest that trial be made of the bark of this tree with a view to the manufacture of paper. The ease with which the bark is detached, and its abundant fibre, deserve attention. We cannot too strongly urge those interested in these questions to make experiments.

We ought to add that the bark of the silver lime, used with a solution of carbonate of soda to separate the filaments, yields large quantities of mucilage, which it is very difficult to get rid of. This product might also probably be utilized.—*From "Etudes sur les fibres végétales textiles employées dans l'industrie," by M. Vetittart.*

PROFESSOR S. B. BUCKLEY—graduated at the Wesleyan University, at Middletown, Connecticut, and not Middletown, New York.

THE LATE DR. ENGELMANN.—It is a pleasure to note that Europe expresses its sense of the loss to science by the death of this distinguished man, as America does. Numerous sketches of him appear in different serials, one of the most appreciative being by Dr. Maxwell T. Masters, in *Nature* of April 24th. This is chiefly devoted to an analysis of Dr. Engelmann's first work, "De Antholysi Prodromus," in 1832. Dr. Masters regards this as a remarkable work, and considering that it was but a college thesis, exhibiting a greater insight into nature than the work of a great botanist, Moquin Tandon, published ten years later.

A SUCCESSOR TO DR. ENGELMANN.—The Linnean Society, of London, has a limited number of foreign associates, of whom Dr. Engelmann was one. On the first of May Dr. Schwendener, of Berlin, was elected to the vacated honor.

A. J. DOWNING AND CHARLES DOWNING.—The *Revue de l'Horticulture Belge* has an article in its April number to so "honor Downing, for the services he has rendered the horticulture of his country by his "Designs for Cottage Residences," "Treatise on Landscape Gardening," "Fruits and Fruit Trees of America," and at the same time show regard for the man who welcomed Parmentier and Berckmans to American shores." But the portrait given is that of his brother, the present Charles Downing, and is apparently the same one which appeared in the *Gardeners' Chronicle* a few years ago.

NICHOLS & LORTON.—The nurseries of this well-known and estimable firm have now been established at Davenport, Iowa, twenty-six years, and at the present time occupy 140 acres.

WILSON FLAGG.—Among the deaths of the month is notably that of Wilson Flagg, who for a quarter of a century or so was a well-known writer on rural topics, and whose productions always found appreciative readers. His papers on landscape gardening, which appeared in *Hovey's Magazine*, were of particular interest to those who found pleasure in the development of garden art. Of late years his writings have not appeared in horticultural serials, but in those of a purely literary character, or as separate works; the last, "Birds and Seasons of New England," being published in 1875.

PYRUS MAULEI.—Mr. Maule, the nurseryman of Bristol, in England, in honor of whom this pretty Chinese species of Pyrus was named, recently died at that place at an advanced age.

HON. M. P. WILDER.—The sympathy of the whole horticultural community will be extended to the venerable gentleman whose name heads this paragraph, in the loss of his son and namesake, M. P. Wilder, Jr., whose death occurred the 7th of June. He was a young gentleman who promised to worthily succeed to the name and to the virtues of his distinguished parent. He had been in declining health for some time, and his death was not wholly unexpected.

TRANSACTIONS OF THE ILLINOIS STATE HORTICULTURAL SOCIETY FOR 1883.—From A. C. Hammond, Secretary. This is a volume of 398 pages, beautifully printed and elegantly bound, with a very large number of essays of great value to western horticulturists. Most of these were given at the winter meeting, at Bloomington; but the more local societies through the State have also a place for their transactions in the report. From what we know of troubles everywhere in fruit growing, we fancy Illinois has as few serpents in its pomological Eden as any place, though of course it has difficulties enough. Pears seem to be uncertain there as elsewhere. Some complain of enormous losses, while others are proud of their wonderful success. So far as we can judge, by putting these contradictory experiences together, one great cause of trouble is, over-heated soil. Where the trees are partially shaded by evergreens, or as some say on northern slopes; or as others say, grass kept mown, so that we get shade without exhausting or drying the soil, they have pears. Plums still have to be "well shaken" before the

plums are taken, and no other more royal road has been found.

It is a pleasure to note that a large number of ladies take part in these meetings. In the East, we rarely see one in the meeting, much less hear them talk. One lady, Miss Helen N. Peck, made a capital point that, while some men were continually throwing up the complaint that women did not know how to cook vegetables, hundreds of these same complaining men did not know how to grow a vegetable fit for a woman to cook. It is truly so. It must take a pretty smart cook to soften the tough and stringy stuff too often sent to the kitchen.

PROCEEDINGS OF THE AMERICAN POMOLOGICAL SOCIETY.—While such documents as these are usually a long time a coming, it is a pleasure to note the appearance of one ot the most valuable appearing so soon after the event, thereby largely enhancing its value. This is in a great measure to be placed to the credit of Professor Beal, who has proved one of the most active and efficient secretaries the association has ever had. The volume itself compares very favorably with any of its predecessors, and contains a vast amount of information of great value to every cultivator. The venerable President Wilder should be very proud of it, for assuredly there is nothing like it issued by any similar society in the world.

MASSACHUSETTS HORTICULTURAL SOCIETY.—At the June meeting the rhododendrons were a special feature. A correspondent says: "The rhododendron show to-day was the finest ever made in the society's rooms. The display of rhododendrons, which give name to the exhibition, was perhaps not so extensive as in some former years, or so full as it would have been a few days later, but any deficiency in this respect was more than made up by the great variety of other plants exhibited. Most prominent among these was a magnificent pyramidal plant of Azalea decora, nearly covered with its rich, crimson flowers, from John L. Gardner. Mr. Gardner also filled a stand near by with delicate heaths and large flowered pelargoniums. Edwin Sheppard contributed a finely flowered plant of Lælia purpurata, and James Cartwright one of Dendrobium densiflorum. J. W. Manning's collection of herbaceous plants was very interesting To come back to the rhododendrons. Directly facing the spectator on entering the hall was the collection of three tender varieties, from the president of the society, which took the first prize—Auguste Van Geert, Duchess of Connaught, and Lady Dorothy Neville—and we venture to say that three finer trusses were never seen. The first of these three kinds is, to our taste, the most beautiful of all the half-hardy rhododendrons. Near these was a truss of Lady Grenville, which took the prize for the best single specimen of any tender variety. A table on the left of the centre was completely filled with fine specimens of rhododendrons from H. H. Hunnewell, and one on the right with rhododendrons, azaleas, and cacti, from C. M. Hovey. Francis Parkman contributed a collection of seedling azaleas, comprising some unique colors. The contribution from Jackson Dawson of the Arnold arboretum included, besides rhododendrons and azaleas, a great variety of hardy flowering shrubs, among which were eight species of roses. The vegetable table was filled with asparagus, rhubarb, carrots, cucumbers, etc., all fine specimens. The number of visitors who crowded the hall showed that the beauty of the exhibition was fully appreciated."

EXPORTATION TO FRANCE AND OTHER PARTS OF EUROPE.—Mr. Charles Joly has given the French people an admirable essay on the horticultural products of France, in connection with the question of imports and exports. He refers, during his remarks, to the example of the United States, which, during the months of October and November last year, sent to Liverpool alone about 200,000 barrels of apples. England also, he says, deserves some claim to being a fruit cultural country, having 187,552 acres devoted to the purpose.

HOW TO HEAT A GREENHOUSE WITH WATER.—By J. D. Carmody, Evansville, Indiana. This is full of very valuable facts and suggestions, from which the most experienced plants-man may derive some profit.

VACATION CRUISING.—By Prof. J. T. Rothrock, Philadelphia. J. B. Lippincott & Co., publishers.

Books of travel are too often by those the least fitted to write them. A man or woman may be pleasant writers, and yet not have the gift of seeing much. What such people write might very often be just as well untold. The present author is not one of that kind. He sees what is worth noting, and knows how to tell what he saw. On this occasion he decided to spend his vacation by a two months' cruise along the coast in a yacht. This is out of the usual course of travelers, and it is a treat and a profit to follow him in his novel summer experience. If we do not want to go on a cruise

ourselves, we like to know what he found; but the great probability is, that after finding out how cheap and thoroughly enjoyable such a way of spending the summer months may be, one may think sometime to go and do likewise, and then the book will have a double value.

GARDEN AND FARM TOPICS.—By Peter Henderson. For a quarter of a century Mr. Henderson has been one of the busiest of our horticultural writers, and few among them all are more esteemed. It is enough that Peter Henderson says so, to settle many a controversy. In this book we have a copperplate engraving of the man who has done so much to enlighten us, and this gives it additional value. It will, however, be well appreciated for what it otherwise contains, which is given in carefully prepared essays and chapters on a great variety of subjects.

CATALOGUE OF THE NATIVE AND NATURALIZED PLANTS OF BUFFALO AND VICINITY.—By David F. Day, of the Society of Natural History. This is probably the first local catalogue ever issued, which gives mosses, lichens, algæ, and fungi, and is really a complete list of the members of the vegetable kingdom. Another departure is, that instead of the old "twenty miles" round, we have a radius of "fifty miles," which is a tribute to the steam travel of the day. A large number of the plants are emigrants, while the natives seem to be getting on the "rare" list. It is unquestionably the best local catalogue ever issued.

GODEY'S LADY'S BOOK.—J. H. Haulenbeek & Co., publishers, Phila. The GARDENERS' MONTHLY has an interest in every branch of cultural progress, and necessarily in the success of those magazines devoted to this good cause. *Godey's Lady's Book*, now in the fifty-fourth year of its existence, deserves much credit for the good it has done and is continuing to do. In its efforts at home adornment and household improvement, trees, flowers, and garden architecture are not forgotten. In its June issue, we find a steel-plate engraving of Helen Mathers, the poetess and author, which makes a very pretty picture, as well as an excellent work of art.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

REPORTS OF HORTICULTURAL SOCIETIES.—We have over and over again had to express our regret that reports sent us by secretaries and reporters at Horticultural Societies are so absolutely worthless to the general reader that we cannot waste room on their publication. It is of no consequence to a reader in San Francisco to know that John Smith in Kissimee city received the "first premium for a Bartlett Pear," or that Andrew Simpson had the "second premium for his big pumpkin." But if Horticultural Societies would take pains to prepare some intelligent reports, the magazines would be glad to get them, and such published reports would do more to attract exhibitors than even premium money in many cases. We give below a report made by the Secretary of the Jersey (Channel Islands) Horticultural Society, which, even after crossing the Atlantic, will be of interest to our readers:

Beurre d'Aremberg.—This is the Glout Morceau of English gardens and of Hogg's "Manual." It is a splendid fruit, but the tree is so tender that it requires the protection of a wall to bring its fruit to the highest perfection even in these islands. A fair specimen weighed 13¼ ozs., and measured 4½ ins. in length and 3½ ins. in diameter. Ripe in November and December.

Beurre Bachelier.—A very handsome fruit of good quality. 15¾ ozs., 4½ ins. long, 3¾ ins. diameter. Ripe in November and December.

Beurre Diel.—This is a favorite pear in these islands, as elsewhere. Fair specimens 16 ozs., 5 ins. long, 4 ins. in diameter. Ripe in November and December.

Buerre Clairgeau.—A very handsome pear of second quality, usually comes very large, but was

not shown in good form this season, weighing only 15 ozs., and measuring 4½ ins. in length, and 3¼ ins. diameter. Ripe in November.

Beurre Superfin.—Beautifully even-shaped handsome pear, of good quality. Tree a good bearer. 12¼ ozs., 4 ins. long, 3½ ins. diameter.

Doyenne du Comice.—This sort produced the handsomest lot of fruit in the show; it is rapidly rising in public estimation and is likely to supersede the Chaumontel, as it has all the good qualities of that sort, and is a much handsomer fruit. A good specimen weighed 17 ozs., and measured 4¾ ins. long, 3¾ ins. in diameter. Ripe in November and December.

De Tongres.—A very showy high-colored fruit, fair quality, golden yellow with bronze red on the sunny side. 15 ozs., 5¼ ins. long, 3¾ ins. in diameter. Ripe in October.

Doyenne Boussock.—A very handsome pear of fair quality, of even outline, full and round about the eye, pale yellow in color, with golden russet around the eye, and grey russet about the stalk. 12 ozs., 4 ins. long, 3½ ins. in diameter. Ripe in October. The fruit exhibited does not answer to Leroy's outline figure.

Duchesse d'Angouleme.—The tree of this very popular sort is hardy and a good bearer as a standard or bush, nevertheless the finest fruit is obtained from wall trees. A fair specimen of this weighed 18 ozs., and measured 1¾ ins. long, and 4¼ ins. diameter. Ripe in November.

Louise Bonne of Jersey.—The specimen of this popular sort exhibited was not of fair size, 8 ozs. only, and measuring 4 ins. long, 3 ins. diameter. Ripe in October.

Urbaniste.—Fruit of good quality. 6 ozs., 3½ by 3 ins. This is small for the sort, if true. Ripe in October.

Van Mons Leon Leclerc.—A truly handsome pear as shown. 15¾ ozs., 4¾ ins. by 4 ins. Ripe from October to December.

Winter Nelis.—This high quality pear does not seem to come to great perfection in these islands; in fact, this seems to be the case with all hard dense-fleshed fruit of both apples and pears; there is something in the climate or soil that does not suit them, while with the softer lighter-fleshed fruit of both species it is the reverse; they grow to great size and perfection. The specimen of this fine variety weighed 4¼ ozs. 2¼ by 2¼ ins. Ripe from November to January.

Zephirin Gregoire.—Small fruit, good quality. Tree good bearer. 6 ozs., 2¾ ins. long, 3 ins. diameter. Ripe in October.

PENNSYLVANIA STATE COLLEGE.—It is a well-known fact that when legislatures undertake special subjects connected with practical affairs they are seldom successes. When they do succeed the success is generally due to some streak of luck scarcely contemplated by the legislative action. Thus it has been with the land grants of the United States made to the States in severalty for the promotion of education in connection with agriculture and the mechanic arts,—while some of these colleges founded or aided under this grant have been marvellously prosperous, the prosperity has been rather by accident,—the great proportion have had no more success than the average of such attempts under any other auspices. It is not to be wondered at that so many have failed,—it is those which have prospered which should excite our surprise. The Pennsylvania College has not been one of the successful ones. On the plea that the geographical centre of the State had a prior claim to location it was placed where no one could get at it or take any interest in it whatever,—hence, not one in a thousand of the most intelligent farmers in the State has ever seen it, nor has a large number of those who lead public opinion in the newspapers and magazines. Then it was induced, as so many learned institutions are, to get into debt,—and in short it could do little, and this little could not be known, as there was no means to learn about it. Perhaps it might be well even yet to retract the step and move the institution to some more advantageous spot, making a State Reform School or some other industrial institution out of it. But whether or no, it is a pleasure to note that it is doing and prospering more than it has ever done in its past history. The gentlemen who now compose its faculty are pushing, intelligent men, who have to work under the burden of others' errors, as well as want of means, but they are making the college better known and appreciated than it ever has been, and Pennsylvanians owe them thanks.

AFTER THE CHRYSANTHEMUM SHOW IN FAIRMOUNT PARK.—"Indeed, my dear," said Mrs. Benjamin Franklin Smythe to her visitor, "you most assuredly missed a ray churchy spectacle in not beholding the Christmas Anthems at Fairmount Park last winter. Nothing like them has appeared since the wonderful Roaring dandies which were sent from England to the Centennial, or the chawming Horse Leeches which Landscape Gardener Miller employs to make his beds of Moses."

AUCTION SALE! Of the Choicest and Rarest Collection of Stove & Greenhouse Plants

EVER OFFERED AT AUCTION IN THE UNITED STATES, INCLUDING ORCHIDS, PALMS, FERNS, &c.

YOUNG & ELLIOTT have received instructions from Willard P. Voorhees, Receiver appointed by the Court of Chancery of New Jersey, to effect a dissolution and settlement of all business relations heretofore existing between GEORGE SUCH and CHARLES and JOHN J. RIDGWAY in the plant business, carried on by GEORGE SUCH for their JOINT ACCOUNT, and a DIVISION of the PROPERTY therein, to sell by Auction AT THE GREENHOUSES of said GEORGE SUCH, at SOUTH AMBOY, NEW JERSEY, this valuable and interesting collection of plants, without reserve, on **Tuesday, Wednesday, Thursday** and **Friday, 8th, 9th, 10th and 11th of July,** at 10 O'CLOCK A. M., precisely, each day, until the entire stock is disposed of. Catalogues of the Sale can be had by applying to

YOUNG & ELLIOTT, 18 Cortlandt Street, New York.

By order of W. P. VOORHEES, Receiver, New Brunswick, N. J. W. ELLIOTT, Auctioneer.

Art of Grafting and Budding

BY CHARLES BALTET,

Appropriately and fully illustrated by 186 cuts, showing methods, tools and appliances. Pp. 280, 12 mo. cloth, flexible. Price $1.25 mailed, postage free. Address,

CHAS. H. MAROT, 814 Chestnut Street Phila.

ASPARAGUS CULTURE.

The BEST METHODS EMPLOYED in ENGLAND and FRANCE.

BY JAMES BARNES AND WM. ROBINSON.

With translations of Mr. Lebœuf's Essay on Asparagus, and particulars of the seven years competition instituted for its improvement. Illustrated with wood cuts. New edition. 84 pages. 50 cents by mail on receipt of price. Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

CRANBERRY CULTURE.

BY JOSEPH J. WHITE

Embodying in plain and concise manner all the useful and practical facts which study and experience have yielded to the inquiring Cranberry grower of the present time. 128 pages, 12 mo, cloth. Illustrated. Price, post-paid $1.25. Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

FRUIT GROWER'S FRIEND.

AN EASY GUIDE FOR THE

Raising of Fruits for Pleasure or Profit

BY R. M. HAINES.

Paper, 84 pp., 8vo, price 30 cents; mailed post-paid on receipt of price. Address,

CHAS. H. MAROT,
814 CHESTNUT STREET, PHILA.

ROSES IN POTS;

observations on their Cultivation including the Autobiography of Pot-Rose,

by WM. PAUL.

92 pages, cloth, illustrated. Price, $1 00

Sent Prepaid by mail on receipt of price.

CHAS. H. MAROT, 814 Chestnut Street, Phila.

A MANUAL OF VEGETABLE PLANTS,

BY ISAAC F. TILLINGHAST.

Containing the experiences of the author in starting all those kinds of vegetables which are most difficult for a novice to produce from seed; with the best methods known for combating and repelling noxious insects and preventing the diseases to which garden vegetables are subject. 102 pages, 16mo, cloth, price, $1.00, mailed, post-paid, on receipt of price. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

The GARDENERS' MONTHLY

AND HORTICULTURIST

FOR 1883-4.

SUBSCRIBERS

are requested to send at least one **NEW** name with their own, if possible. For this attention, we will furnish **THE TWO** at $3.00 for the year.

TWO NEW SUBSCRIPTIONS at $3.00. FIVE at $7.00.

Remit by MONEY ORDER or REGISTERED LETTER; or if you send DRAFT or CHECK, make payable on MIDDLE STATES, NEW ENGLAND or MARYLAND. On BANKS west and south of those points add twenty-five cents to each CHECK, to refund cost charged us for collection. Currency is at risk of sender.

RESPONSIBLE AGENTS

Will be allowed a liberal commission, retainable out of subscriptions secured and forwarded. Send for net rates. Sample copy 15 cts., postage stamps. We do not hold ourselves responsible for the acts of *Bogus Agents.*

SUBSCRIBERS MUST CHOOSE THEIR AGENTS AT THEIR OWN RISK.

Any Subscriber who has already renewed his subscription and paid $2.00 may order a new subscriber at the rate of $3.00 the two, by remitting the additional $1.00 to balance, and oblige, with thanks for past favors and efforts.

All subscribers, at whatever rate, are invited to take advantage of our list of **CLUB PAPERS.** See advertisement.

CHARLES H. MAROT, Publisher,

814 Chestnut Street, Philadelphia.

EXETER MACHINE WORKS,

EXETER, N. H.

19 FEDERAL STREET, BOSTON.

GREENHOUSE HEATING BY STEAM A SPECIALTY.

Half a million square feet of glass—upwards of three hundred houses—have been heated by our Apparatus the past TWO SEASONS.

If you contemplate any changes, send for our Illustrated Catalogue.

A FEW OF THE PARTIES USING OUR APPARATUS:

I. C. WOOD & BRO. (3 orders), Fishkill, N. Y.
JOHN TAYLOR, Bayside, N. Y.
PEARSON & WAITE, Sparkhill, N. Y.
C. F. EVANS (2 orders), Frankford, Pa.
HARRY WEISS, Germantown, Pa.
LONSDALE & BURTON, Germant'n, Pa.
GRIFFIN BROS., Frankford, Pa.
LOUIS S. HART, Harrisburg, Pa.
HARRY CHAAPEL, Williamsport, Pa.
C. T. SEIBERT, Pittsburg, Pa.
W. M. F. HAYDEN, Wilmington, Del.
H. EICHELBERGER, Govanstown, Md.
AGRICULTURAL DEP'T, Washington, D. C.
W. E. MORTON (2 orders), Portland, Me.
CHAS. BURLEY, Exeter, N. H.
CITY OF BOSTON, Cedar Grove Cemetery
R. G. PARKER & CO., Dorchester, Mass.
J. F. HANSON & CO. (3 orders), Winchester, Mass.
H. C. CABLE, Danbury, Conn.
J. H. FALES, Pawtucket, R. I.
KNOX NURSERY CO., Vincennes, Ind.
B. O'NEIL, Elgin, Ill.
JAS. D. RAYNOLDS, Riverside, Ill.

tf12

A NEW BOOK NOW READY.

THE ROSE

A treatise on the Cultivation, History, Family Characteristics, etc., of the various groups of Roses, with accurate descriptions of the varieties now generally grown.

BY H. B. ELLWANGER.

Pp. 293, 16mo, cloth. Mailed, post-paid, on receipt of price, $1.25. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

AMERICAN GRAPE GROWING

AND

WINE MAKING.

By GEORGE HUSMANN, Professor of Horticulture in University of Missouri, with contributions from well-known Grape Growers, giving

A WIDE RANGE OF EXPERIENCE.

Illustrated, 12mo, 243 pp., cloth; price, $1.50. Mailed post-paid on receipt of price. Address,

CHAS. H. MAROT
814 Chestnut Street, Philadelphia.

GREENHOUSES HEATED

BY LOW PRESSURE STEAM.

mh12 SATISFACTORY PERFORMANCE OF APPARATUS GUARANTEED. ADDRESS,

E. H. BOCHMAN, - - - - Box 373, Pittsburgh, Pa.

Kissena Nurseries.

Trees and Plants.

Parsons & Sons Co.,

LIMITED.

Flushing, N. Y.

fff

Parks & Gardens of Paris

considered in relation to the wants of OTHER CITIES, and of PUBLIC and PRIVATE GROUNDS.

By WM. ROBINSON.

Splendidly and profusely illustrated, pp. 548. Octavo. Price $7.50. Mailed post-paid on receipt of price.

Address, CHAS. H. MAROT,
814 Chestnut St., Phila.

The Botanist's Pocket Book.

2nd Edition, cloth limp, pp. 208. By W. B. Hayward. Containing the Botanical Name, Common Name, Soil and Situation, Growth and Time of Flowering of every Plant, arranged under its own Order. Price $1.70. Mailed, postage free.

CHAS. H. MAROT, 814 Chestnut St., Phila.

Harvard College Library

THE GARDENERS MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

Vol. XXVI. No. 308.
(Combined Magazines, Thirty-ninth Year.)
AUGUST, 1884.

PUBLISHED BY CHARLES H. MAROT,
814 Chestnut Street, Philadelphia.

[Entered at the Post Office, at Philadelphia, Pa., as second-class matter.]

THE GARDENERS' MONTHLY

AND HORTICULTURIST.

It is published on the first of every month at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS relating to subscription or advertising should be addressed.

☞ Communications, Copy and Packages for the Editor should be addressed to THOMAS MEEHAN, GERMANTOWN, PHILADELPHIA.

SUBSCRIPTION PRICE, POSTAGE PAID, $2.00.

ADVERTISING RATES IN THE GARDENERS' MONTHLY:

	⅛ col. or 12 lines.	¼ col. or 16 lines.	⅓ col. or 24 lines.	½ col. or 32 lines.	⅔ col. or 48 lines.	1 col. or 96 lines.	1 page, or 192 lines.
One Insertion	$3.00	$4.00	$5.50	$7.00	$10.00	$18.00	$35.00
Two times, each	2.90	3.90	5.00	6.80	9.00	17.00	33.00
Three " "	2.80	3.75	4.75	6.55	8.50	15.50	30.00
Four " "	2.70	3.60	4.50	6.30	8.10	14.40	27.00
Five " "	2.55	3.40	4.25	5.95	7.65	13.60	25.50
Six " "	2.35	3.15	3.93	5.50	7.05	12.45	23.50
Seven " "	2.20	2.95	3.65	5.15	6.60	11.75	22.00
Eight " "	2.05	2.75	3.45	4.80	6.15	10.95	20.50
Nine " "	1.90	2.45	3.20	4.45	5.70	10.15	18.85
Ten " "	1.75	2.30	2.85	4.05	5.25	9.30	17.45
Eleven " "	1.60	2.15	2.65	3.75	4.80	8.55	16.15
Twelve " "	1.50	2.00	2.50	3.50	4.50	8.00	15.00

Twelve lines nonpareil is ¼ col. A less space than ¼ col. will be furnished at same rate per line as ¼ col.
For space on FLY-LEAF and COVER PAGES, also FIRST PAGE advertisements facing last reading page, 20 per cent. advance on above rates will be charged.

CHAS. H. MAROT, Publisher, 814 Chestnut St., Philadelphia.

CONTENTS OF THE SEPTEMBER NUMBER.

SEASONABLE HINTS:

Flower Garden and Pleasure Ground 257
Greenhouse and House Gardening 263
Fruit and Vegetable Gardening 269

COMMUNICATIONS:

Seedling Moss Roses 258
Pruning and Management of Trees 258
Notes on Hardy Plants 259
Flowering of the Climbing Hydrangea 259
Ipomœa Bona-nox 260
On the Mole 260
Garden Troubles in Victoria, B. C 261
Cattleya Gaskelliana 264
Naphtha and White Lead for Greenhouse Shade 265
Low Pressure Steam Heating in Hot Water Pipe 265
To Utilize a Broken Flower Pot 266
Stephanotis Floribunda 266
Æchmea Discolor 267
Xylinacantha Macrantha 267
The Philadelphia Rose Rot 267
The English Gooseberry 270
Notes on the English Walnut 270
Production of Strawberries 271
Preserving Grapes 271
Peach Root Aphis 271
English Gooseberries 272
On Catalpa 275
The Larch in the West 276
Common Names of Rocky Mountain Coniferæ 277
Hybrids Between Wheat and Rye 278
Botanical Notes 278
The Loco Weeds 278
Massachusetts Horticultural Society 287

EDITORIAL NOTES:

Five Acres of Roses—Weigela floribunda—Late Flowered Roses—Rose Perle D'or 261-262
Celery in July—New Early Grapes—Grape, Empire State—Grape, Francis B. Hayes—Blackberry, Wilson Junior—Blackberry, Minnewaska—Rancocas Raspberry—Strawberries in Missouri—The Jewell Strawberry—Keller Strawberry 272-273
Timber Area of the United States—The Bad Lands of Dakota and the West—The Timber of the Ash—Forestry Congress 277-278
Fairmount Park, Philadelphia—Flowering of the Night Blooming Cereus—Microscopic Fungi as Originators of Disease—Scientific Editing—Blue Mountain Tea—Hybrid Orchids—Fish-Catching Plants—Vanilla Beans—Fertilization of Yucca—Longevity of the Grape 279-281
Southern Industries—What is a Vine—The Sanguinary Lophospermum—The Science of Advertising—Dr. Eugene Fournier—Miss Emily J. Leonard—Wm. L. Schaffer—The Rural New Yorker—Transactions of the Minnesota Horticultural Society—Proceedings of the Ohio Horticultural Society for 1883-'84—Transactions of the Illinois Horticultural Society: Twenty-eighth Report—Practical Forestry—The Orchids of New England 283-285
Horticultural Department of the World's Fair at New Orleans—Hardy Flowers blooming in July—Massachusetts Horticultural Society 285

NEW OR RARE PLANTS:

Croton illustris 269

SCRAPS AND QUERIES:

Street Trees—Rose Pests in Nevada—A Yellow Verbena—Pink Rhododendron maximum—How to get rid of Moles—Hydrangea Sports 262-263
Hot Water Heating Again—Begonia odorata 269
Aphis on Peach Tree Roots—Paris Green—A Robin-proof Cherry—Kieffer Pear on Quince—An Insect Depredator on the Apricot—The White Plume Celery—Grapes and Currants—Burning Curled Peach Leaves—A Light Cherry Plum—Grape Culture—Pear from New Albany—Windsor Cherry—Yellow Dock as Food 273-275
Rose Galls—Names of Plants—Self-fertilization in Composites—Imperfect Clover Flowers 281-282
Mr. Lorin Blodgett—Specimens for Name—Gardening and Gardeners—Gardeners and their Employers—Long Names for Fruits and Flowers—Editorial Temper—Labarax Solution 285-286

FLOWER GARDEN & PLEASURE GROUND 257-262
GREENHOUSE AND HOUSE GARDENING 263-269
FRUIT AND VEGETABLE GARDENING 269-275
FORESTRY 275-278
NATURAL HISTORY AND SCIENCE 278-283
LITERATURE, TRAVELS & PERSONAL NOTES 283-286
HORTICULTURAL SOCIETIES 287-288

SEP 1 1884

THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

VOLUME XXVI. SEPTEMBER, 1884. NUMBER 309.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

No one should object to the so-called carpet bedding, mosaic beds or "beds of Moses" as an intelligent lady was made to say in our columns recently, for they certainly make the grounds very gorgeous and gay. But these should not drive out the old fashioned herbaceous plant. Some people are again introducing them, but they are even then given some back piece of ground, out of sight of the general admiration the garden excites. But much more might be done by having them in combination with shrubbery. We have seen some illustrations this year, especially on the boundaries of grounds. The Chrysanthemum will soon be in blossom, and if one can get a chance to see it in combination with a belt of shrubbery the force of our remarks will be apparent.

In ornamental gardening much use may be made of Aloes, Fourcroyas, Yuccas and similar plants, that are not altogether hardy. These are often kept in huge tubs, which require an enormous amount of labor to handle every spring and fall, besides many an hour spent in watering. These do nearly or quite as well if planted annually in the open ground and re-potted in fall. If there be much of this heavy handling of tubs this fall, it may be worthy of consideration whether in some cases it would not be as well to tip them out, and carry to the potting place, so as to put them in something temporary and not half so heavy to keep for next year.

Herbaceous plants, like varieties of fruits, usually delight in being renewed from seed occasionally. Save at this season those that may be particularly desirable and sow early next spring. If sown now some may bloom next year.

We may make up our minds now what trees to thin out when the winter comes. In almost every place trees are too thick, except where clumps of trees are desired for landscape effect. Along streets twenty feet is the space usually given. This is well enough for the first ten years, but after that forty is enough. A tree which spreads its branches is always more graceful than a mass of branches drawn up. And a tree which spreads affords no temptation to have its head cut off. Such trees are bad subjects for the tree butchers that infest the environs of all large towns.

In transplanting this fall do it as early as possible, that the earth may settle well about the roots before winter sets in. All successful planting really depends on how soon the mutilated roots can draw in moisture to supply the waste of evapora-

tion; hence if a tree has been badly dug and has few roots or the roots appear dry or weak, lessen the demand on them for moisture by cutting away some of the branches. In this cutting take the weak branches, and not the strong and most vital ones, as are often stupidly sacrificed, and above all see that the earth is tightly packed about the roots, for, unless the earth is in actual contact with each rootlet the work is not perfectly done. If there is a rootlet which even by a hair's breadth does not touch the earth, that rootlet might as well not be there. It is a very good plan to lift the tree up and down a little before the earth is hammered in about the roots, so as to allow the earth to close in around the roots as much as possible.

It is not necessary to wait till all the leaves are off before planting. Cut away whatever may not be mature. No matter if those of no experience regard it as barbarous to do so. No one regrets it who once tries the plan. Gardeners take the leaves off of cuttings they make, and a transplanted tree is in much the position that a cutting is.

Hardy bulbs should be transplanted when necessary in the fall, and the earlier in the fall the better. They will do pretty well up to frost. All this applies to Dutch bulbs as well as others. Bulbs like to be rather deep, and to have the soil rather rich and rather damp. It is the low reclaimed mud of Holland which helps their bulbs quite as much as the skill of the Dutch gardeners.

We have said a good deal about ornamental hedges in past numbers; but not, perhaps, as much as the subject deserves. Not only do they make the very best kind of boundary fences, and form in themselves beautiful objects, but they have a great use in small places in breaking off long and uninteresting scenery, and, by dividing perhaps one grand view into innumerable parts, make a small place seem very large indeed.

Of evergreen hedges the most readily obtained are Norway Spruce and Scotch Pine, Hemlock, Spruce and Chinese and American Arbor Vitæ,—but where dwarf dividing lines are desirable the golden Retinospora and dwarf forms of Arbor Vitæ make pretty objects. Of decidious hedge-plants almost any of the thick growing shrubbery make pretty hedges.

The purple or green Beeches, Hornbeams, Dogwoods, Fly Honeysuckles, Berberries, Elæagnus, Pyrus japonica, Japan Snowballs, all make admirable dwarf hedges, and most of them are almost as impenetrable when perfectly trimmed as an Osage Orange or Honey Locust. For cheap farm hedges nothing is yet as good as the two last named.

COMMUNICATIONS.

SEEDLING MOSS ROSES.

BY MISS M. M. B. R.

I find everything relating to roses interesting, so I hope my experience may interest your correspondent who wishes to know about seedling moss roses. I have two kinds which seed freely—a pink and a red one; the pink was sent me as Glory of Mosses; I have forgotten the name of the other. I have raised one seedling from the red, which is well mossed, and as handsome as the parent, though a little different. I have other seedlings, which have no moss; two of them resemble in style of growth Madam Plantier, but one is a lovely pink color, the other blush. While speaking of roses, I would like to mention one I have, which is quite a curiosity. It is only three inches in height, measuring to the tip of the tallest bud; has now five buds, and has already bloomed more than once this season, which is its second. It shows no inclination to grow taller. *Washington, N. C.*

PRUNING AND MANAGEMENT OF TREES.

BY J. B.

"E. S. W.", Beverly, N. J., writes (page 192, June number of GARDENERS' MONTHLY), complainingly of the stupidity of gardeners, as they call themselves—having reference to pruning—calls them tree butchers, etc., and says: "There are few things that require more intelligent management than a tree, yet any wood-chopper, who may call himself a gardener, is engaged to attend to them," etc.

In reference to the above I agree with "E. S. W."; but when he says: "No gardener heads back a tree. Trees have to be planted thickly at first, for various reasons; as soon as the branches of the trees spread out and touch each other, the superfluous ones should be cut entirely away," I only object to the words "No gardener heads back a tree." For instance, several years ago, in planting trees round my not very extensive place with Lindens and Maples (the latter obtained from an old farmer from the woods, who had not much taste or judgment, and who did not bring these Maple trees uniform, one or two being too tall and long in the stem to correspond with the others), I thought, after they had grown a year or two and got well established, I would head them down with the saw and knife. Of course this was done judiciously and at the right season of the year. I remember a neighbor's remarks to the effect that I had

spoiled my trees. My answer was that I had an object in view. They are now nice, bushy, symmetrical shaped trees. At the same time it is a serious thing to give a man a knife unless he knows well what he is about, with the exception of cutting out dead wood. Of course I may not be a gardener after all. *Fredericton, N. B.*

[Our New Jersey correspondent, E. S. W., will not object to this, we are sure. His shaft was aimed against those fellows who will cut away nine-tenths of a twenty-year-old tree, leaving nothing but the trunk and stumps of the main branches. This disgraceful mutilation is very common about Philadelphia. The cases indicated by our New Brunswick correspondent are specimens of good gardening rather than bad. The pruning knife is the most merciful educator of a young tree when in good hands.—Ed. G. M.]

NOTES ON HARDY PLANTS.

BY W. FALCONER.

The Crested Iris.—And you saw this year for the first time in American gardens Iris cristata! (see p. 197). When you were at Prof. Sargent's, a few years ago, you may have overlooked it; but his herbaceous border was partly edged by it. And there were large clumps of it in the Botanic Garden at Cambridge; and, perhaps disseminated from Cambridge, it is not infrequent in gardens around Boston; indeed, in '78 or '79 (I forget which), I sent nearly a barrel of it to Woolson. It is a little beauty and well worth growing, and given a nice spot in a garden border it soon spreads itself into broad patches. I found it perfectly hardy in Massachusetts.

The Oak-leaved Hydrangea.—A double-flowered Thomas Hogg may be a novelty as a pot plant or in Southern gardens, but a really handsome and seldom seen shrub in Northern gardens is Hydrangea quercifolia. It makes a beautiful compact bush, with large ornamental brownish downy leaves, and in June and July has oblong panicled cymes containing many white sterile flowers. It is hardy at Boston.

Japan Snowball.—Apropos of your note, p. 197, I would say that the Japanese Snowball (V. plicatum) is very much finer than the American one (V. opalus), but if possible Viburnum rotundifolium is finer than plicatum. At any rate it comes into bloom a few days earlier, and, judging by our plants, the snowballs are larger. When they first begin to leaf out the leaves of rotundifolium and plicatum are very much alike, but as they advance in weeks they differ in form and the lower leaves of rotundifolium are almost perfectly round. Our plants of it are of the variegated variety.

Japanese Maples.—Shelter both in summer and winter has much to do with their successful cultivation. They will thrive on sandy or loamy soils. Most of the finer and more delicately colored varieties are generally increased by grafting, and any of them by layering. I have raised excellent plants from layers left till the second year before disconnecting them from the parent. And that rare and very distinct species, the hornbeam-leaved (Acer carpinifolium) I found rooted more readily than any of the palmatum group.

FLOWERING OF THE CLIMBING HYDRANGEA.

BY MR. PETER HENDERSON.

For the first time in this country I believe the climbing Hydrangea has flowered. I have sent on a sample of it to-day to Mr. Blanc, the engraver, and he will hand it over to you as soon as he is through with it, which I presume will be to-day or to-morrow. I sold the plant which has now flowered to Mr. L. H. Meyers of Clifton, L. I., in 1878. It was planted in a group of chestnut trees and very little attention was paid to it until it had started to grow. Then it was syringed frequently, so as to encourage its growth, and now it has attained the height of 30 feet and spreads about 6 feet on each side of the tree. The stem at its thickest part is about 1¼ inches in diameter. If you get the flower in good shape you can judge what a grand thing it would be when profusely flowering at that height. It is very similar you will observe in the flower to the old Hydrangea Japonica.

I may state that Mr. Frank Cassidy, who is Mr. Meyers' gardener, informs me that probably the rapid growth of the climbing Hydrangea was due to an accident. There was a wire suspended on which was hung a moss basket just above the plant, and by watering the basket of course considerable moisture fell on the Hydrangea, and thus induced the extraordinary growth which has resulted in its flowering.

[Though this was intended as personal information, Mr. Henderson will, we are sure, pardon this public use of it. The flowers add very much to the value of this plant.

In our experience we have found it to grow slowly till it gets a good start, much as in the case of a

similar growing Japan plant, the climbing Euonymus; but when it gets a good start it grows rapidly. By the way, why is it that our own native climbing Hydrangea, Decumara barbara, has never been in culture—or has anybody got it? The Editor would be glad of a plant. This Japan plant closely resembles it.—Ed. G. M.]

IPOMŒA BONA-NOX.

BY C. E. PARNELL.

In addition to the notes published on page 195, of the July MONTHLY, relative to the Ipomœa noctiphyton, I would say that I obtained a plant from Mr. Henderson last season. It was planted out early in May in a rich deep border, and trained up a pillar, which on account of its rapid growth it soon covered. In this situation it flowered freely all summer. On the approach of cool weather it was cut back, taken up and potted and removed inside where it grew but little all winter. This season, early in May, I again planted it out in the flower border. It has grown freely and promises an abundance of bloom in a short time. I may here say that it was given a winter temperature of from 55° to 60°, and water was given as often as necessary, but as it was potted in as small a pot as possible no inducement was offered it to grow in the winter, the object being to preserve the plant for another summer season. I am under the impression that this plant was first distributed by Mr. Henderson and trust that he will favor the readers of the MONTHLY with some information as to its history and correct name.

I consider this plant as a very desirable addition to our list of summer climbers for outside decoration; for if strong and healthy plants be placed in a well enriched deep border they will with a little care and attention as to training soon cover an immense space with both foliage and flowers. If grown in light or sandy soil a good mulch of coarse or littery manure, applied as soon as the plants commence to grow, will be found to be of great benefit if dry weather sets in.

Queens, N. Y., July 5th, 1884.

ON THE MOLE.

BY ECCLESIASTICUS.

Did the Editor ever see a mole? If yes, did you ever see one that could by any possibility eat a bean (castor or otherwise) or nibble a grain of corn? Should such a one put in an appearance, I would be much pleased to have a look at so rare a lusus naturæ; having handled moles innumerable, but never one of that sort. Moles are vermivorous and insectivorous, and never eat any hard substance of any kind; and we have good authority for the statement that no vegetable substance was ever found in the stomach of one. Moles burrow passages in search of grubs and worms, which mice follow and do all the mischief that may be done in the way of eating roots or planted seeds. The only mischief that moles do, unless destroying multitudes of grubs and worms be mischief, is in the tunneling of the earth, in a dry time, about the roots of plants, frequently along whole rows, for the food found in the manure spread in the furrow, thereby leaving the roots exposed and increasing the drouth. And the very means taken to save young or newly transplanted plants in such a dry time, to wit, watering, often leads to their destruction, where moles are numerous; as unless the whole ground be wet at once, the moistened spots attract worms and the moles follow in search of them, and unless discovered in time and their burrows trodden down, the plants will surely suffer.

Apropos to the subject of feeding our friends, the moles, on castor beans, I will risk the assertion and challenge proof to the contrary, that no animal in a state of nature will eat any natural substance, to its own destruction, or great injury. Poisons may be disguised to "deceive the very elect," the cap sheaf of all created things, the keystone of the animal arch, with all his boasted science; but that any animal, even the most lowly, will, in a state of nature, eat a bean (unless drugged) and die, certainly is open to proof. Certain substances are repugnant to certain animals, which may take "French leave" when such substances are placed about their haunts. Some four years ago I was informed that "Crown Imperial" planted in a field would drive away moles. I respected the source of information so far as to try the experiment, and planted three bulbs only in a two-acre field, and two in my garden. Up to that time I had been much annoyed by moles tunneling the whole ground. Well, the bulbs sprouted and the plant made a rather feeble growth during one season, and the following spring died. But the moles, for some reason or other, actually did disappear, and have not troubled me since, until this season they are now numerous again. Now, I do not assert that the moles ate the Fritillaria bulbs, nor even that they were driven away by them, but that if they were, it can only be accounted for upon the ground that the strong odor of those roots so much resembles that of the Mephitis Americana, which

is no doubt an arch enemy of the mole and all "such small deer," that when it met their very sensitive olfactories, they incontinently "skedaddled," fearing that the skunks were on their track.

[It is our custom to allow freedom to our correspondents in the expression of their opinions; and the fact that we permitted a correspondent in our July number to record his belief that a mole would eat a castor bean does not imply editorial endorsement. When the sparrow was introduced into this country, and men of science wrote to us that they had cut open hundreds of the birds and never found a seed—nothing but caterpillars or vermin—just in the same manner we recorded what they said, as we have done in this case.—Ed. G. M.]

GARDEN TROUBLES IN VICTORIA, B. C.

BY G. A. K.

I send a few lines on the insect pests of Vancouver Island. When I arrived here nearly five years ago, my attention was attracted to a leafless apple orchard. I asked the farmer I was riding with what had killed all those fine young trees. He said they were not dead, but that caterpillars had eaten all the leaves off, because the owner was too lazy to destroy their tents on their early appearance. I saw afterward it was the same with a great many more trees. For two years caterpillars were very troublesome; then a worse enemy appeared, the Aphis or Green Fly. I noticed the orchards that suffered most with caterpillars were nearly all in grass, while those attacked by the Aphis were in nearly all cases under cultivation. A great many grubbed up their trees, for it was impossible to kill the pests on large trees, they were so numerous. The trees looked as if they had been dragged through a chimney—they were so black. The orchard that suffered most last summer is the best attended in the vicinity; the trees are washed every winter with some mixture that the owner prepares. My trees and seedlings are washed or syringed with tobacco water, which keeps down the enemy pretty well. The young pears that were budded last summer are affected this spring; but the apples are not so bad so far. The black and the red currants are very bad with fly in some places. But now the worst scourge of all has made its appearance. I first noticed it in a bed of onions—about a quarter of an acre. I hoed them, and they were about two inches high, and looking splendid. Engaged in another part of my garden, I paid no more attention to them for three days, when, to my surprise, they had nearly all disappeared. I saw by the looseness of the soil and a few half dead plants that there was an enemy at work under the soil. Following up a row and scratching with my fingers, I found hundreds of little grubs, from an eighth of an inch to an inch and a half long. I then went to a spinach bed, and it was nearly all gone, except a small patch where the soil was a little wet. The next was a shallot bed; here I found from one to fourteen grubs around one plant. A great many of the grubs were large, some one and a quarter inches long, and more brown in color; the small ones were a dirty green. I then went all around the garden, which is about three and a half acres, and found everything gone or fast going, with the exception of peas. Even tomatoes, which I might state seldom ripen here, and only a few dozen plants are usually planted to take their chance, were eaten off just above the ground. I have lost everything with the exception of peas and early cabbage. I am planting late peas and potatoes on the land that has been eaten off. I have made several inquiries, and I find all have lost more or less—some everything. The poor seedsman gets the blame by those who are not close observers of what is going on. Our local papers do not mention anything about it; but if some one finds a poor little mildewed rose bud struggling for existence about November or December, then the papers would be full of "What a glorious climate—roses in bloom in winter!" The grubs, after getting to maturity, crawl partly out of the ground in the evening, and a large fly creeps out, commonly known as daddy-longlegs.

[When the Editor was in Victoria it seemed to him the veriest Paradise of gardening. This letter shows that there is a serpent in every Paradise. Wherever the horticulturist goes, he must expect to find enemies to contend against. The insect sent in the letter was one of the crane flies—genus Tipula—and certainly not responsible for the troubles delineated by our correspondent.—Ed. G. M.]

EDITORIAL NOTES.

FIVE ACRES OF ROSES.—The block of Ellwanger & Barry is described by a correspondent to have been magnificent this season. They are mostly grafted on the Manetti stock which adds materially to their vigor and luxuriance.

WEIGELA FLORIBUNDA.—Some botanists have failed to find any distinction between Weigela and Diervilla, and hence we often find in catalogues

our Weigela rosea, as Diervilla rosea; but Dr. Asa Gray has pointed out in his Botany of Rodgers Japan expedition, that there is very good reason for keeping the two genera separate. Dr. Gray has also shown that there is no good reason for making so many species. He would reduce all our garden forms to two, W. Japonica, to which W. rosea would be referred, and W. floribunda which we now figure; and to which he would refer the forms which go under the names of hortensis. We who are familiar with the raising of garden plants and know how they vary, would not only agree with Dr. Gray, but go still further

Weigela floribunda.

and hazard a doubt whether all might not go under the name of W. Japonica. Still, as the varieties are very distinct in the eye of the lover of flowers, the names are useful, and the present W. floribunda will probably be one of the best known after a while. It has the richest color of all, being crimson, and when it makes a second growth, which it does on the slightest provocation, flowers as freely in summer as in spring. It has many names in nurseries, such as John Standish, Lavallee, and probably others. It is surprising that though it has been known some years it is yet as scarce as though a wholly new plant.

LATE FLOWERED ROSES.—The rose bug was unusually numerous this season about Philadelphia, and it was quite a labor to have good flowers. But the Prairie roses had the advantage of not appearing till the rose bugs were gone. If only some one could give odor to a Prairie rose, it would be a good class to improve.

ROSE PERLE D'OR.—A yellow Polyantha rose under this name is recorded among recent novelties.

SCRAPS AND QUERIES.

STREET TREES.—"C. S.," St. Louis, Mo., writes: "Will you, or some of your Eastern readers who are posted on the matter, have the kindness to inform me and others interested here as to the value of the Carolina poplar, and also the Balsam poplar, for street trees in densely built up cities, and as compared with other soft wooded and fast growing trees? We know of its large foliage, its rapid symmetrical growth while young; but is it fairly durable and does it retain its branches fairly well, and not dying out by degrees as it were, like the common Cottonwood and the Lombardy do?

"We seem to be reduced here to only two trees that are worth planting, and these are the soft Maple and the Buttonwood, and both have some objectionable features. I regret to feel compelled to pronounce our native White Elm a failure in all the densely built up parts of the city, although a native, and flourishing finely in all our valleys outside. The cause is a rust which sets in after the first flush of June's deep green is fairly over, which seems to hold good while the copious rains of spring and early summer last, but as soon as the heat and dry atmosphere of midsummer sets in the rusty leaves appear and become more pronounced as the season advances, until long before autumn the whole foliage becomes thin and begins early to drop, a curly stunted growth ensues, and the tree only drags out a miserable existence."

[The Cottonwood poplar gets quite yellow with rust before midsummer, just as it does West. The Carolina poplar, though closely allied to the Cottonwood, keeps clear of this, and is very freely planted about Philadelphia. It is unfortunately a rapid grower, and all rapid growers should be avoided in street tree planting, unless in very broad avenues where there is plenty of room for development. It is very pleasant for a year or two to get the benefits of a fast growing tree, but it is not long before it is too tall, and in many ways too inconvenient, and then comes the temptation to head back. This does very nicely for a year or two—after that the tendency to become strong at the top and weak at the bottom is increased. It is worse in these respects than it would have been if not cut. Besides this it becomes diseased. The end is, that within a few years after the cutting back system is commenced, the tree has become such a miserable object that it is entirely cut away. This is one great reason why, in all large cities, there are no trees where they are most wanted.

They have been there, but have been trimmed and trimmed till the early death came. There is a magnificent list of low-headed moderate growing street trees to choose from, but as long as the community insists on fast growing as a first requisite, it must rest satisfied with miserable Poplars, soft Maples and diseased Elms, for the insect attacks the last is subjected to is worse than a disease.—Ed. G. M.]

ROSE PESTS IN NEVADA.—A lady sends us specimens of rose leaves almost white from being preyed on by a kind of thrip which appears to us to be identical with the grape leaf hopper.

A YELLOW VERBENA.—Mr. H. A. Dreer sends a seedling yellow verbena; though not yellow in a serious sense, it is something on the creamy order, and a very distinct and interesting variety.

PINK RHODODENDRON MAXIMUM.—Prof. Shaffer, of Pottsville, sends us flowers of a rosy pink instead of the ordinary purple, which shows that this very hardy and pretty kind of Rhododendron is capable of improvement by selection. We have met with some almost white occasionally. This species of Rhododendron is popularly known as Mountain Laurel.

HOW TO GET RID OF MOLES.—Mr. W. Falconer says: "I don't know how, but one thing I do know is, that if you use Hale's or the Isbell mole traps, set them properly and attend to them every day, you won't have as many moles as you used to."

HYDRANGEA SPORTS.—"D.R.W.," New Brighton, Pa., asks: "Are not sports (double and semi-double) of Hydrangea Thos. Hogg coming pretty thick and fast? We have received propositions from the holders of two double Thos. Hogg to buy their entire stocks. These sports originated more than four hundred miles apart; one in 1881, the other so far as we can learn was discovered this season. Have any other readers of the MONTHLY noted any tendency in this direction?"

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Eggs and larvæ of small insects get protection in the wood work of greenhouses and conservatories, and the best gardeners give all a thorough cleansing once a year. Where neatness is a feature of a plant house, a coat of paint is desirable. For plant growing for winter flowers, white is the best tint. There cannot be too much light to encourage free blooming. Many have observed that when a house is first built the plants bloom better than in a few years afterwards. By that time dirt gets between the laps, and often down the rafters, and all tends to lessen the light in the house. Those who grow flowers for profit and use rough lumber, usually whitewash at this season. Sulphur is put in the whitewash, and a little salt. It aids in destroying insect life. In glazing use narrow laps—not only because they collect less dirt, but also less water. In broad laps the water freezes, expands, and cracks the glass. Putty is now seldom used on the outside. It is so apt to separate from the wood a little, and then the house leaks. But it is neeessary to bed in the glass carefully, and tack down with glaziers' brads, before painting the rabets on the outside. For winter flowering a roof with a steep pitch gives more light than a flatter roof,—and it is stronger and gets more seldom out of repair. It is noted by good observers that broken glass is in proportion to the flatness of the pitch. Furnaces should have a careful overhauling, and soot taken out of flues. Much of the smoking at the first starting of a fire comes from choking by soot. If a furnace does not draw well at first, a bunch of shavings on fire at the mouth of the chimney will generally give it a start. There is much about the arrangement of a furnace to task one's notions of good economy. As an actual saving in the coal bill, large coal is cheaper than small,—but small coal will heat up quicker. There is also much waste in small coal,

much going through the bars unconsumed. The bars are best set for moderate sized coal, and small coal kept on hand to hurry up in emergencies. Ashes are never wholly taken away from the stoke hole, as when a fire is in good condition, and it is desirable to keep it so, without much consumption of fuel, a few shovels full of wet ashes is just the thing to throw on the top.

There is nothing in gardening on which so much can be saved by good judgment as in the management of a greenhouse fire. At least one-fourth the coal bill may be saved by a sensible fellow in charge, and yet not work as hard over it as a numbskull. Wood is not often used for greenhouse work, except in comparatively mild climates. When used, good chunks covered by damp ashes will smoulder and keep up a little heat for a long time. It is very profitable to use in connection with coal when good solid chunks can be had cheap. Coke is used where one is near gas works, but it has to be had at low figures to be profitable. It requires a larger furnace than coal does, and in severe weather must have almost constant attention, as it soon burns out; but where there is a large amount of glass to be heated, attention must be constant at any rate, and coke may be used to advantage. In heating, hot air absorbs less heat than water, and water than steam,—but the question of rapidity of transmitting heat is of importance. Hence, though it takes more coal to warm a cubic foot of water than of air, or more for steam than hot water, it is often cheaper to use these means of conveying heat, by the less time in which they accomplish their work. Very much may be saved in heating by looking after the waste of heat. The writer once made an estimate of the large spaces under laps and cracks through boards and sashes, of one who "could not keep the house warm," and it footed up two square feet.

Imagine the trial to keep a house warm with a hole of two feet square in the roof! Not long since we saw a gardener who "does not find anything he does not know" in the GARDENERS' MONTHLY, filling in concrete between boards four inches apart, forming one side of his greenhouse, in order he better to keep out the frost. The poor fellow did not know that air was a better non-conductor than concrete, and that, provided he made his boards fit tight, it was better to have a hollow than a solid wall, besides saving the rapid rotting of his boards.

It will not be long before Chrysanthemums are in flower. The ladies may do well to remember that there is nothing prettier in the world than a bunch of these flowers set off with Mahonia leaves.

COMMUNICATIONS.

CATTLEYA GASKELLIANA.

BY EPIPHYTE.

Some time last fall in an article I wrote on Cattleyas I asked if any one had bloomed the above Cattleya. I had bought quite a number, seeing that it was highly spoken of in some of the English journals. It is so difficult to judge of many Cattleyas by the bulbs that no one can be certain what he buys until they bloom. I have now in bloom quite a number of this Cattleya; several other amateur florists have also bloomed it. It appears to be a connecting link between C. Mossiæ and C. Mendelii, but blooming after they have done. It blooms on the spring growth, and not like C. Mossiæ and C. Mendelii on the year before bulb. The bulbs are shorter than the above named Cattleyas. The leaf is also shorter and wider for its length. Some of the leaves have a red color on the under side, while others are quite pale green. I have not had over two blooms to a bulb, nor have I seen any more, but this number will no doubt be increased when the plants are better established. The flowers are not so large as C. Mossiæ, but are firmer in texture, in this resembling C. Mendelii. I have them from pure white to deep rose in the petals. The lip varies as much as C. Mossiæ. I have one with a white lip and a faint dash of orange, others with canary or orange interior, and rose or rosy purple exterior, often with a beautiful white frilled edge. One very beautiful variety had rose petals with a pure white stripe down the center and a deep purple blotch on the end of the petals and also on the lip. It was very beautiful. This Cattleya has a delicious odor, entirely different from C. Mossiæ. It is also extremely free flowering. The colors are very pure. Coming as it does after the above Cattleya and remaining two to three weeks if kept cool and dry, I think it a valuable acquisition, as it helps to keep up the bloom of Cattleyas until C. Harrisonii C. superba, C. guttata and varieties begin to bloom in August and September. I have at this time a C. maxima in bloom, with light rose petals heavily dashed with purple like a carnation. It is this wonderful sporting in orchids that adds so much to their interest. I had a large number of Dendrobium thyrsiflorum in bloom this summer and was very much struck with the difference in the blooms. In some the spikes were almost globular and the flowers densely close together, others had spikes a foot and over long, loosely set,

but as geometrically arranged as a honey-comb. In some the lip was canary yellow, and from that to dark orange. Some had pure snow white petals, others creamy white, and a few had rose stripes on the back.

NAPHTHA AND WHITE LEAD FOR GREENHOUSE SHADE.

BY ERNEST WALKER.

The extremely warm weather a few weeks ago made it necessary to shade some of the greenhouses. We had a faint recollection of having read a brief note in an old GARDENERS' MONTHLY entitled "Naphtha and Milk for Greenhouse Shade." Not remembering the exact number of GARDENERS' MONTHLY containing the above receipt we decided to act from memory. Let's see! it was—naphtha and milk—to the consistency of milk; accordingly it was used as recommended, but we found the shade too light. Thinking there might be a mistake, we determined to look up the GARDENERS' MONTHLY containing the receipt. We soon found it—page 169, June, 1881; it was headed "Naphtha and Milk, etc," but it did not recommend this at all; it was Naphtha and White Lead mixed to the consistency of milk. We felt a little amused at our mistake and wondered that your attention had not been called to the oversight (?) before.

We find dipping greenhouse labels and the ends of nursery stakes in this solution of white lead and naphtha an expeditious, excellent and cheap mode of painting or applying white lead to labels, etc. A great quantity can be dipped at once. The naphtha renders the white lead penetrating — soon evaporating, leaves the pores filled and stake thinly coated with white lead. *New Albany, Ind.*

LOW PRESSURE STEAM HEATING IN HOT WATER PIPE.

BY B. P. CRITCHELL.

The question of steam heating has been so thoroughly discussed in the MONTHLY that it seems like going over old ground to say anything more; but, under the heading of heating with common hot water pipe, I know will meet the views of many that would like to make the change, but, on account of the cost of the almost complete loss of the old hot water pipe, are deterred from trying steam. I will give as briefly as possible a very simple plan of how we have heated a large area of glass for the past two seasons, one of them very severe. We are using the old hot water 4-inch pipe, both the light 5 ft. lengths and the heavy 10 ft. as it was in the houses, with success, and, we are satisfied, much less cost of fuel than by hot water. The great trouble so far has been to get the condensed water back to the boilers without expensive check valves or pumps.

This is overcome by the laying of the pipe and the setting of the boiler or boilers, as it is safer to use two boilers on a large place than one, and when they need cleaning out in cold weather one can be in use and one idle. The first is the setting of the boiler and the size. It has been proven to quite a number that you cannot make steam in a tea-kettle (so to speak) to run a range of houses, which has been the reason of quite a number of failures of steam heating jobs. A boiler of sufficient size to hold steam more than just enough to fill the pipes is the only sure way of success. We have two boilers, bought second-hand, 26 ft. long, 50 inches in diameter, six flues each; either will heat the whole area, over 50,000 square feet; and with the cold 28° below zero, one did the work satisfactorily though both could have been used if needed, and at no time was there over 3½ to 4 lbs. steam showing on the gauge. In fact at some of the distant points no actual pressure could be gotten but the vapor kept the pipes so warm that the hand could not be laid on them.

The quantity of pipe needed in houses is one-third that of water; that is, a house that takes six lines of 4-inch pipe to heat to 50° with the thermometer at zero, two lines of low steam will give even more.

Our plan is to set the boiler as far below the ground level of the houses as possible, without making it inconvenient, but sufficient to keep the water line in the boiler three to four feet below the lowest pipe on the return line. That amount of water will act as a perfect check valve to keep the water from backing out of the boiler which it will do if put on a level without expensive check valves and a steam pump, as inspirators will not work at low pressure. If it is impossible to get the boilers down low enough and the size of the place will justify it, a low pressure steam pump can be arranged on a sunken water tank that is steam tight, and pump the water back as it is returned by the condensed water pipe.

We start from the steam drum with two 4-inch pipes and take them up high enough so that the pipe continues to fall until it returns to the boilers, keeping them free of condensed water, and the water in them flows almost boiling hot ahead of the steam (or with it) making no noise or snapping

of the pipes as where there is steam and water in same pipe. The mains or supply pipes at our place are all wrought iron, also all fittings around the boilers and the return line for the condensed water. We take the wrought lines over the tops of the doors in our sheds and drop down to the heating lines through the houses.

If wanted, a main supply can be taken to the far ends of the houses and the heating lines through the houses attached, but care must be taken to keep pipes all dropping to the boiler so as to have no traps to hold water, as it will make poor circulation in the line and liable to be broken by the passage of the steam through the water. In making the communications with the wrought pipe and the cast iron we have a fitting made for that purpose with socket on one end for the cast iron pipe and pipe thread cut on the other end. Our fitting is eighteen inches long and made of good cast iron, heavy enough to make it strong. All the lines through the houses must be suspended under the benches or on the walls, and one end of the pipe that crosses the houses, either flow or return, must be loose, so that the expansion and contraction will not pull the joints loose, or break the weak pipe. Our joints are made of iron borings, mixed with vinegar, to make them rust quickly. Water will do, but takes longer to rust. The joint made this way can be put up with less labor than hemp and red lead, and much easier to take out if wanted. In making the joint a small strand of hemp or oakum is put in first in the collar and the iron dust filled after, and well pounded. Hemp joints will not do for steam on account of the expansion drawing them loose. The system we have been using has proved very satisfactory to us, and the cost is quite an item in the putting in of steam heating where all old pipe has to be taken out. From our experience, small boiler and small pipe, with strong pressure to force the steam, can only be a success where very large buildings are to be heated and not greenhouse work. Our plants have done quite as well, or better, than they did with hot water. And with plenty of furnace room to burn cheap coal, large flues and good chimneys, no trouble will be had with soot or dirt on the houses, or with the draft on cold nights, just when small boilers always choke up, if any thing but hard coal is used. Any style of a boiler that will burn soft coal or hard, tubular or horizontal, so that it will make steam enough to fill all the pipes and leave some to spare, will heat a large range of houses for two-thirds the cost of hot water, and the quick time with which the steam can be gotten over a large area will at once show to the florist and others that steam is bound to supersede hot water as a heating medium, but on large places only. It will not pay a practical florist, with only small glass area, to use steam, unless he keeps night watch or goes to the expense of automatic drafts, etc., and the saving on a small place would not justify the extra care needed. *Cincinnati, O.*

TO UTILIZE A BROKEN FLOWER POT.

BY M. M. G.

A broken pot may be cut off so as to make a convenient pot or vessel for sowing seeds in by using an ordinary claw hammer—inserting the edge of the pot and by a twisting motion of the hammer shearing or gnawing it around the pot. It is not likely to break the pot. *Louisville, Ky.*

[In much the same way that the Indian makes the arrow-head.—Ed. G. M.]

STEPHANOTIS FLORIBUNDA.

BY MANSFIELD MILTON.

How seldom do we see this beautiful stove climber in cultivation. The waxy white flowers are well adapted for cut flower work. Not only beautiful in itself but associated with other flowers it is very attractive. The culture of this old plant is very easy if a few particular points be observed. Being a native of Madagascar it at all seasons requires a warm temperature, and during the time it is making its growth, abundance of water, not only at the roots, but if possible the atmosphere of the house in which it is growing should be kept well saturated with moisture.

The soil in which it succeeds best is equal parts loam and peat, or leaf-mould, with a good sprinkling of thoroughly decomposed manure; add sufficient sand to insure sufficient porosity. Perfect drainage is indispensable, and in this particular there are more failures than in anything else, for it is impossible to keep a plant of Stephanotis in health with imperfect drainage.

It is suitable as a permanent climber in a greenhouse, and looks well trained on either a balloon or flat trellis; only considerable care is necessary to train properly when growing fast, as the shoots soon get entangled when not attended to in time.

Mealy bugs will find a home on this plant quicker than on any other, and strict vigilance is required to keep the pest off. Should the plant ever get very badly infested with this pest, cut the shoots well back and thoroughly clean; it endures

severe pruning well, but should be done after flowering and ripening of the young wood. Several months rest is then beneficial for insuring abundance of growth and blossom afterwards.

Youngstown, O.

ÆCHMEA DISCOLOR.

BY CHARLES E. PARNELL.

The variegated Æchmea, *Æ. discolor*, is a very showy and attractive stove plant belonging to the natural order Bromeliaceæ. It is a plant to be found in a very few collections only, but as it is a very singular and attractive one when well grown, I am induced to call attention to it. For decorative purposes it is very useful, owing to its winter-flowering habit, and the length of time its brilliantly colored flower spike remains in an attractive condition. It is a plant that bears a considerable resemblance to a small pine-apple in its habit and manner of growth. It has long broad leaves, which are shortly acuminated near the apex; they are also considerably reflexed, as well as being sharply serrate; they are of a dull green color above, and of a dirty violaceous beneath. From the centre of the plant the flower panicle arises; it is much longer than the leaves and of a bright scarlet color; it is also branched and bears the flowers distantly spiked along the branches, the culycine segments being scarlet below and black on the upper portion. It requires a treatment similar to that given all plants belonging to the natural order Bromeliaceæ. It should have, a season of growth, a season of rest after growth ceases, then liberal treatment should be given to assist in the production of the flower stem. When growing, a temperature of from fifty to sixty degrees will answer, and one of from fifty to fifty-five when at rest. It prefers a compost of rich fibrous loam and well decomposed leaf mould in equal parts, to which some small bits of charcoal may be added. Use the compost rough and pot lightly, taking every care to drain the pots well. Place the plants singly into four or five inch pots as early in the spring as possible, and then place them in a warm, light position, and when they commence to grow, water freely. About the middle of summer they will require to be shifted into larger sized pots, six or seven inch, according to the size and strength of the plant. Now treat liberally, in order to obtain as vigorous a growth as possible, and gradually bring it to a state of rest about the first of October. After this keep it dry at the roots until it is wanted to flower, then water freely, giving manure water so as to induce a vigorous growth of the flower spike; when in bloom keep the plant in a dry and cool situation in order to prolong the bloom. After flowering cut away the old plant and the suckers, of which five or six will be produced, can be treated as advised for young plants. In this way the plant is propagated. *Queens, N. Y.*

XYLINACANTHA MACRANTHA.

BY MR. JAMES GURNEY.

For the past eighteen months I have been very carefully watching (what appears to me) a very strange freak of an Agave, we believe to be Xylinacantha macrantha. At that time, while carefully looking over our collection for the sake of supplying new labels where required, I found the heart of this plant had become very considerably enlarged, and this, apparently, at the cost of the leaves; for these, though green, were reduced fully one-third of their natural size. I at once decided that my plant would die. This was January, 1883. About the end of May, after our collection of Agaves were planted out, I noticed a something springing from the ground, about one foot from this Agave, very strongly resembling a strong head of asparagus. I did not cut it away at the time, and in a few days I became convinced it was a blooming stem of an Agave. It made a stem three feet six inches high, bloomed, and produced seeds, from which I have young Agaves growing. On showing this to the late Dr G. Engelmann, he considered it a thing of very rare occurrence, and thought it would in all probability bloom from its centre the following year and die. But the plant remains in exactly the same condition as it was a year ago. Not an atom of further development in any part of the plant has taken place, neither does it show the slightest sign of decay; and the blooming stem, instead of drying up, after it had matured its seeds, remains as fresh and green as in June of last year. Have you known of a similar case to this? *Gardener to H. Shaw, Esq., St. Louis, Mo.*

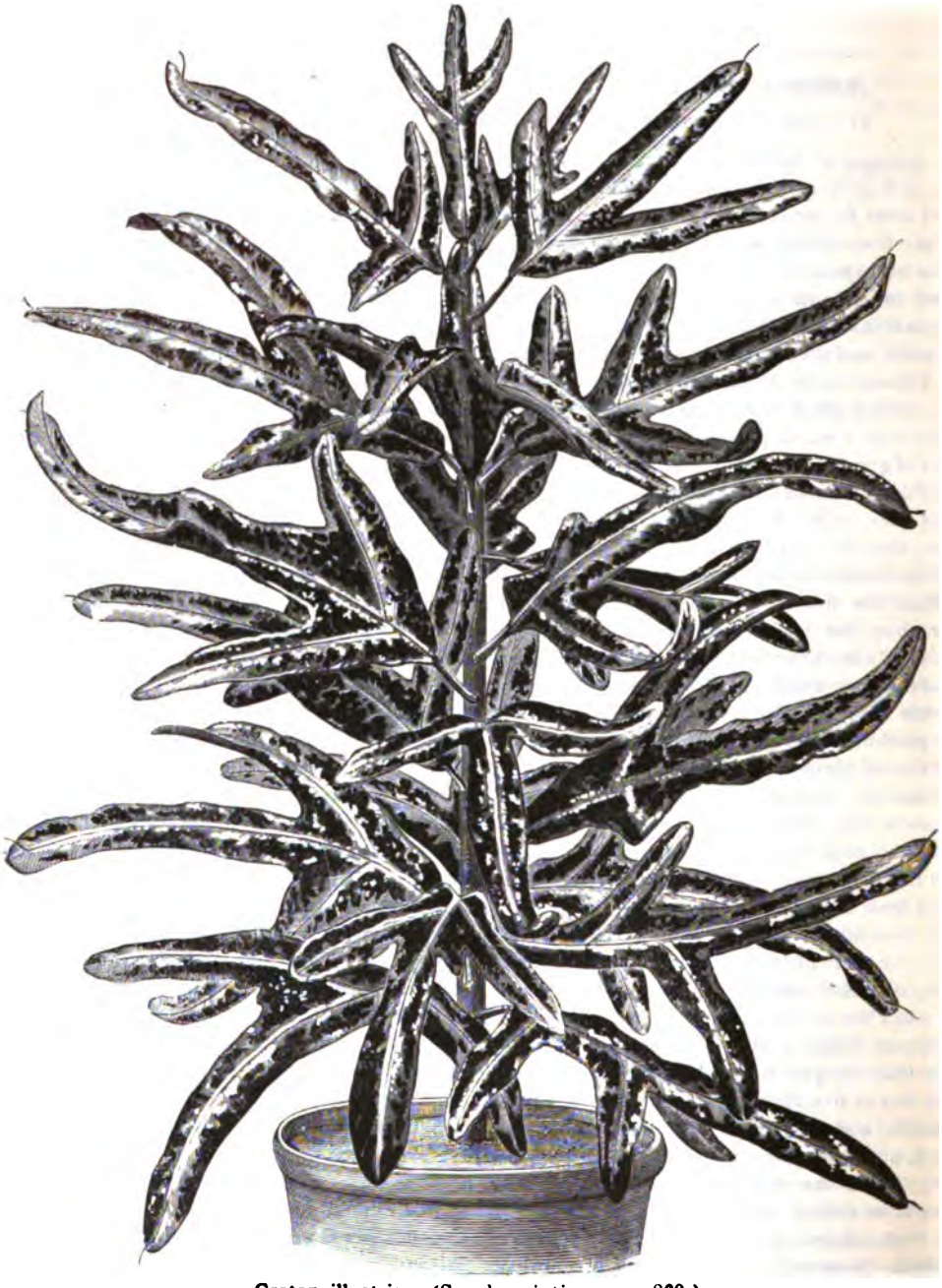
THE PHILADELPHIA ROSE ROT.

BY ERNEST WALKER.

As a remedy for the rose trouble referred to as Philadelphia Rose Rot, but which was also troublesome in places throughout the West and elsewhere, I would suggest plenty of fresh pure air. In my experience this is the doctrine I have always kept in view, believing plants require fresh pure air as necessary to health, the same as peo-

ple, and have never seen any such destructive fungus in our houses, although we had upwards of a thousand roses planted on the benches of one of the houses last winter, and all our plants have always been praised for their health and vigor; which we relate not boastfully, although with some pleasure, but for the purpose of bearing us out in the doctrine stated.

We have observed florists as a general rule keep their houses too close during winter, especially a severe one such as the last was. They do not avail themselves of the bright and warm days to



Croton illustris. (See description page 269.)

midday, to admit fresh, pure air into the greenhouses. The result is a stagnant and impure atmosphere, kept so by confinement, the sunlight having no power to purify a confined and motionless atmosphere, which at once invites and encourages fungus growth and other low forms of vegetable life—the parasitic enemies of the higher types. The more highly organized forms of vegetable life all require light, and pure fresh air, as vitally essential to vigor, while on the other hand semi-darkness, and a moist stagnant atmosphere seem requisite to the vegetation, luxuriance and reproduction of the lower forms, of which the troublesome rose fungus, Peronospora sparsa, described and illustrated by Prof. Trelease, in his valuable article on pages 211 and 212 of the July number, is a representation. So, what we would suggest as obviously the radical enemy or remedy and preventative, is in plenty of pure, fresh air and sunshine. *New Albany, Ind., July 8, 1884.*

NEW OR RARE PLANTS.

CROTON ILLUSTRIS (see cut).—Recently we had a note from a correspondent in praise of this charming novelty. We have now the opportunity, through the kindness of Mr. Wm. Bull, of giving a sketch of the plant. It is a singularly grotesque-looking and strongly characteristic variety. The leaves are mostly three-lobed on purplish petioles, the base being oblong, succeeded by two lateral alternate lobes, which, as well as the apex, appear to be twisted or curved, so as to acquire a sort of forked appearance. The color is green, richly maculated with golden yellow; the central bar yellow, and the variegation irregularly distributed, so that sometimes the points are almost wholly golden.

SCRAPS AND QUERIES.

HOT WATER HEATING AGAIN.—Mr. Zirngiebel sends the enclosed note in fuller explanation of the methods of hot water heating he uses: "My principle of heating by water under compression is a modification of Perkins' system, using less pipes, of larger size, and very low pressure, obviating also the defects of the original plan, which I have been well acquainted with, having had it under my care for several years in Europe, and having had the best opportunity of testing its advantages and defects. In my opinion it is the heating of the future."

BEGONIA ODORATA.—"Will you please answer to "B" the specific name of the white flowering Begonia which grows so freely from naturally sown seed on benches and elsewhere in greenhouses. Leaf green, dished, very slightly if at all auricled?"

[Probably Begonia odorata is the kind referred to. B. semperflorens it might be, but that is not so common as the other.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

There would seem to be little new in the way of practical hints from year to year; what is found true once should be true for all time. But fruit growing is a complicated affair. Things are only relatively true, and, as circumstances vary, so do rules. Take fall planting trees, fall pruning, planting of large or small trees, and similar questions. There has surely been great gain. Everybody knew that, as an abstract question, it was best to plant any kind of tree in the fall. The old arguments for it were good enough. It was said that the ground was warm, roots healed, often new fibres would form, and the trees were just ready to push into growth when the growing time came. This is all true. But in practice it was found that stems evaporated moisture in a drying time, as much as they would with leaves in winter. A tree exposed to keen, frosty winds, is, therefore, at a disadvantage when it has lost many roots by transplanting. So the rule came down to this, that where the tree could be put where the roots would soon heal, where the winter would not likely be very severe, where the tree itself had good roots, and these not injured by too much drying before

planting, where shelter from drying winds could be afforded, and so forth, it was a very good thing to plant in fall. But when we look at the risks of spring planting,—the tree called into growth before new roots are formed, hot drying summer winds, summer drouths and other contingencies, the conclusion of the observant man is that on the whole one season is no better than another, and "plant when you are ready" has become the rule. But progress has been made in getting some of the advantages without the risks. In fruit trees particularly, now, many who want to plant in spring, buy in the fall, and plant all temporarily thickly together, no matter if the stems are a foot or more deep in the ground, in some nook sheltered from drying winds. Here they remain till spring, sheltering one another, as well as being sheltered. The advantage is that the wounded roots heal over, and when replanted in spring, push into growth a couple of weeks before those then freshly taken up. Besides this, there is the great advantage of having them on hand to plant just when you are ready, instead of having them rushed in just as something else is sure to demand immediate attention. It does not take much time. Hundreds can be thus thickly planted in a few hours. Even when trees come in spring, almost as much time has to be taken in "heeling in" to save till we are quite ready, and the imperfect manner of heeling in usually destroys large numbers, though "very carefully planted by an experienced person," as the complaint to the vendor usually reads.

And "carefully planted" has new meanings as knowledge progresses,—as in treatment of animals kindness is often cruelty. The "deep hole," "soft earth pressed about by the fingers," the "copious watering" or "puddling of roots," useful sometimes, just as often kill the trees. The perfection of good morals in tree planting is, to do it when the ground will powder and not paste—as soon as there has been dirt enough put in to somewhat cover the roots, pull the tree up and down a little to encourage the earth to jolt into every little hole and cranny, then fill in and pound down the earth as tightly as possible. Prune out all the weak shoots and shorten the stronger ones. This is good planting, and unless a tree is dried up before setting in, not one in a thousand has much chance of losing its life.

And about large trees. They do just as well as small ones, provided they are very healthy, and are taken up with all the roots that can reasonably be taken, planted as we have described and pruned in the same manner. After a tree has once come freely into bearing, and its growing powers thereby checked somewhat, it has not the same chance as a really growing tree—growing in the full sense of the word—but until this time arrives the planter may safely use the larger trees.

COMMUNICATIONS.

THE ENGLISH GOOSEBERRY.

BY J. R. S.

As the English gooseberry is again receiving some notice, I will state that I have had five sorts of them in cultivation for the past twenty-five years—have always had a crop and never a mildewed berry. They receive the same treatment as I give to all small fruits—currants, raspberries, blackberries and strawberries, viz.: a good coat of old manure on top of the ground and a mulch of salt hay on top of that. The Downing and Houghton we think hardly worth the trouble of gathering.

Rahway, N. J.

[With this note came a basket of excellent berries, testifying all that is said of them. We are not quite prepared to endorse the last sentence. There is a peculiarity of flavor about the American which the European never has, and which is grateful to many palates. The case is much like the native and the foreign grape. The last is very good when it is good, and so is the native.—Ed. G. M.]

NOTES ON THE ENGLISH WALNUT.

BY DR. EZRA MICHENER.

We have often had accounts of large and otherwise remarkable trees, and other objects of interest; but I do not know whether my walnut tree, Juglans regia, has received the respectful notice it deserves.

The Juglans regia (English walnut) seldom attains maturity in this section of the country, the young trees generally perishing from the severity of our winters. From a small tree of this description, and whose precocious fruiting was probably the result of its decline, I procured six well characterized English walnuts in the autumn of 1826. The nuts were all planted and grew.

During the summer (1827) five of the number grew to the usual height of five or six inches. The remaining one made a more vigorous growth, reaching full eighteen inches, with a stem half an inch in diameter. The second year (1828) the same disparity of growth continued. While none of the five exceeded ten or twelve inches, the one

reached to over four feet, with a stem to correspond. In the ensuing spring (1829) they were all set out; within five years the small ones had all been winter-killed, and the larger one had become a tree.

This tree is now fifty-seven years old, round topped and spreading, and still manifests the same endurance, the same extraordinary vigor; certainly extraordinary for the species, which appears to be of limited growth.

At the height of ten feet the trunk divides into three branches; the following is the result of recent measurements: Height, about 90 feet; circumference at the surface, 15 feet; one foot high, 12 feet; circumference 8 feet high, 10 feet; horizontal extent of branches on the N. W., 51 feet; N. E., 49 feet; S. E., 46 feet; S. W., 46 feet; making 48 feet radius of circle. Area of the circle of branches 7,238 square feet.

The tree has several peculiarities, which are worthy of notice. Though it annually produces a profusion of catkins, and its wide spread branches are crowded with pistillate flowers, it never has matured much fruit; every year a few dozens, once or twice, perhaps a half peck. Apparently, the catkins came too early before the leaves, and being very large and heavy are broken off by the wind, or from some abnormal condition, before the nutlets are sufficiently matured for fertilization. The nuts readily vegetate, but the few trials I have made the trees have not proved very vigorous, and have not borne fruit. The fruit is peculiar in form and appearance, approaching nearer to that of Juglans nigra, than J. regia, giving rise to a suspicion that our tree may be a hybrid between the two. Inclosed pleased find the only perfect nut that is now available. *Toughkenemon, Pa.*

[Very singular walnuts, but similar variations are found at times in the Old World, where there can be no hybridism, and they are regarded now as natural variations.—Ed. G. M.]

PRODUCTION OF STRAWBERRIES.

BY J. R. S.

Having an opportunity this summer of making a test of the comparative productiveness of six varieties, I embraced it, and herewith furnish you the result. The ground occupied by the plants measured 39 by 51 feet, and was divided into eight beds—each bed contained 117 plants, set fifteen inches apart each way. Two beds of Cumberland yielded 44 quarts—22 to each bed; two beds of Bidwell, 50 quarts, 25 to each bed; one bed of Longfellow, 32 qts.; one of Miner, 47 qts.; one of Golden Defiance, 62 qts.; one of Wilson, 76 qts. The whole product was 311 quarts—equal to 6,811 qts., or 212½ bushels to the acre. The yield of Wilson was at the rate of 13,315 qts. or 416 bushels to the acre. *Rahway, N. J.*

PRESERVING GRAPES.

BY W. R. G.

The following slip, cut from an English scientific paper, and translated from a German one, will answer query on p. 241 of GARDENERS' MONTHLY. The use of salicylic acid for this purpose is not new:

"Dr. J. Moritz, of the Royal Horticultural College at Geisenheim, has succeeded in preserving grapes in their natural form and color. The medium which proved most suitable was a 20-per-cent. solution of sugar, containing 0·2-per-cent, of salicylic acid. The grapes to be preserved were placed in a well-stoppered glass bottle, which was then filled with the syrup. After five months they had not altered in color or form."

PEACH ROOT APHIS.

BY PROF. LINTNER.

You were right in pronouncing the attacking insect an Aphis. It is a species I am unacquainted with. I have given no special study to this particular group, and without it they are hard to determine, without having the several forms, living, particularly the winged form. I think that the species is the Myzus persicæ, Sulzer, introduced from Europe.

When upon the branches the Aphides can be killed by spraying them with kerosene emulsified with milk, or mixed with soft soap, after the directions which have been given at different times in the Entomological Reports of the Department of Agriculture, at Washington. The same species at times infests both the roots and leaves as the well-known Phylloxera.

The underground form is more difficult of course, as you know, to destroy. Hot water poured upon them, removing some of the ground from above the roots, has at times been successful, as also the application of leached ashes and sulphur.

Bisulphide of carbon in a small quantity poured into a hole made in the ground among the roots and quickly covered up, has proved efficient against the phylloxera, and against other root-inhabiting species in this country.

The sulpho-carbonates have been very highly recommended, as superior to the above, and in

consideration of the serious nature of the aphis attack upon your trees, and the pecuniary loss resulting, I have transcribed some statements made by high authority in regard to these substances, thinking that you would find it to your interest to test their efficacy.

I would also recommend to you the use of "Soluble Phenyle," which can be procured of T. W. Lawford, 298 E. Chase st., Baltimore, Md., and probably also of some of your druggists. I would also suggest that you remove the soil partially from above the roots, and water with the kerosene and soft soap mixture, combined as in the publications referred.

I found no ants. I found among the material two larvæ of a lady-bug, and one image of the same, which had undoubtedly been rendering good service in destroying the aphids.

SULPHO-CARBONATES.

M. Dumas, the permanent Secretary of the French Academy des Sciences, recommends for the arrest of the Phyxolleræ the use of the alkaline sulpho-carbonates of potassium and sodium, and of barium.

The sulpho-carbonate of barium decomposes under the influence of carbonic acid, and evolves sulphuretted hydrogen and bi-sulphide of carbons. Placed in the ground, by its slow decomposition, it should prove a powerful insecticide.

Sulpho-carbonate of potassium in addition to its toxic effect has also a direct invigorating influence upon the plant.

The use of these sulpho-carbonates was suggested from the need of some substance that would evaporate less quickly than the bi-sulphide of carbon, and thereby infect with their vapors all the surrounding soil. They should be reduced to fine powders and spread over the surface of the ground before the heavy autumnal rains.

Trusting that some of the above measures will serve to relieve you from this serious attack,

Very truly yours,

J. A. LINTNER.

[This communication is in reply to a note by Mr. Blodgett, who has kindly handed it to us for publication.—Ed. G. M.]

ENGLISH GOOSEBERRIES.

BY W. FALCONER.

They are "a right good fruit to grow" under certain conditions you tell us, p. 204. Should you see those grown by Mr. B. G. Smith, the respected treasurer of the American Pomological Society, you might fancy yourself in Lancashire, England,—they are splendid. Some years ago there was considerable talk about "working" the gooseberry on the Missouri currant and thereby gaining immunity from mildew, but alas, it was only talk. We have a lot of gooseberries here worked 3 to 4 ft. high on the Missouri stock, and that have set a nice crop of fruit, but every berry is mildewed. On our low bushes we have also nice heads and plenty berries. They have been grown on the European open-hearted or goblet-form system, and I observe that wherever the berries have been exposed to sunshine they are "scalded," in many cases mildewed, but where well covered by leaves they are as yet (July 1) clean and healthy. The ground is mulched with manure.

EDITORIAL NOTES.

CELERY IN JULY.—Philadelphians did not know what to make of it when first-class celery from Michigan came into their markets at the end of July. It appeared to be of the self-blanching kind. They found ready sale at 50 cents a bunch.

NEW EARLY GRAPES.—The Keystone, Daisy and Early Concord, are new candidates for earliness; the second one named being also "wonderfully" productive. The same introducer has "twenty more" not "fully tested," but of which we are to hear more anon.

GRAPE, EMPIRE STATE.—We are glad to learn that another of the admirable seedlings of Mr. Ricketts has found a purchaser, and will soon go on the market, having been taken in hand by Pratt & Co., of Rochester. This is among the finest of the lot, the bunch being about nine inches long and very heavy. It is of the white section and was raised from one of the class of Labrusca; crossed with one of the riparia section,—Hartford Prolific with Clinton, if we are not mistaken, being its immediate parents.

GRAPE, FRANCIS B. HAYES.—This is said to be a white "child of the Concord" and is credited with great sweetness, earliness, and productiveness.

BLACKBERRY, WILSON JUNIOR.—Editors often have to comment on the difference between a drawing of a new fruit, and the fruit itself when it comes before them. Before us just now is a drawing of Wilson Junior Blackberry, and real fruit of the same from Wm. Parry, and it is pleasant to record that the immense size is not in the least exaggerated. They were 1½ inches long,

4½ inches around lengthwise, and 3¾ round crosswise. Five of the berries weighed 2 oz. They are from one acre, which commenced ripening the latter part of June and yielded 110½ bushels, by side of five acres of Wilson Early, in equally good condition, which yielded but 53 bushels per acre.

BLACKBERRY, MINNEWASKA. — This is represented by the introducer to be superior to any other in productiveness and average size.

RANCOCAS RASPBERRY.—This new variety is recommended as, among other good qualities, standing high, and thus offering good facilities to the fruit picker.

STRAWBERRIES in MISSOURI. — Mr. Samuel Miller, of Bluffton, Missouri, has published in the *Rural World* experiments the past season with forty kinds of strawberries. We notice that the Judge has scarcely one that he seems wholly satisfied with. James Vick comes the nearest to unqualified praise in a general way, and the old Ladies' Pine is yet the best for flavor.

THE JEWELL STRAWBERRY.—This new variety exhibited at the June meeting of Southington Rose and Strawberry show on June 19th attracted attention. It is said, that a quart of the berries will weigh "more than a quart of any other kind." It is not a "chance" seedling, found by accident, and which may or may not be a kind already named and an escape from gardens, but the result of careful seed selection made by the Augurs of Middlefield, Conn.

KELLER STRAWBERRY.—This is said by the raiser to have berries often weighing one ounce, to be ten or twelve days earlier than Sharpless; produces twice the quantity of Sharpless on the same ground; and to "command 50 per cent. more in market than Wilson."

SCRAPS AND QUERIES.

APHIS ON PEACH TREE ROOTS. — Mr. Lorin Blodget sends with a sample the following note: "I send herewith the stem of a seedling peach tree just withering, from the effects of a new scourge, a root Aphis, I think, which clustered thickly around the stem, from two inches down up to the surface. I have lost almost all my seedling peach trees from this cause last year and this year, I think some three years ago also. Is it new?

"It puts an end to peach growing with me. The deadly yellows has killed all my large trees, as I thought it would. Nothing helped them; lime was of no value. Trees that bore heavily last year of the finest peaches are dead, and I shall not have fifty peaches instead of half as many bushels.

"At p. 119-120, Agricultural Report of 1871, an illustration appears of the fungoids found in the liber (inner bark) of peach trees having the yellows. 'Health bark gave no signs of fungi,' says the writer, Thomas Taylor, Microscopist of the Department. Has this been further examined?

"These root aphides, if they are such, and I find ants running over them, have never been referred to, that I can find."

[This is wholly new, unless some record has escaped the Editor's eye.

In regard to the peach yellows—a number of organic bodies have been found by microscopists in connection with peach yellows. There seems to be but little doubt that they are the cause of the trouble. But it is but fair to say that this has not been so clearly demonstrated as to compel universal belief.—Ed. G. M.]

PARIS GREEN.—"W. S.:" We believe you are mistaken. The use of Paris green for preserving potatoes from the Colorado beetle was first discovered or at least announced by a correspondent of the GARDENERS' MONTHLY—see p. 261, 1869. If any one deserves "public reward for saving millions of dollars to the community by the discovery," we believe it should be Lewis A. Lee, of Chicago at that time.

A ROBIN-PROOF CHERRY. — A correspondent near Philadelphia writes: "You may safely recommend to your readers the Late Duke as a cherry the Robins will not touch. I have over a dozen varieties of cherries in my orchard, but do not get a fruit from the earlier kinds, but the Late Duke is always full. I think that they do not take to its flavor, or else they like cherries for their young, as we find the stones in their old nests, and the first brood of young is about over before the Late Dukes come in."

[This may be so. At the same time it is proper to say that around Philadelphia the garden cherry is one of the commonest of wild trees. In almost every "fence corner" are trees of immense size, bearing millions of fruit; one might say millions more than the birds can eat, and after maturity they drop from the trees and make the ground almost black beneath by their numbers. It is just as likely that at the time our friend's Late Dukes are ripe, they can get all they need without running the dangers of the regular orchard to get them.—Ed. G. M.]

KIEFFER PEAR ON QUINCE. — "F. W. B.," Muncy, writes: "Last year you published a note from Mr. Wm. Parry, which I understoood to have editorial endorsement, to the effect that this pear does not do on the quince stock. Is this really the editorial opinion?"

[It is our opinion that the Kieffer pear does not do as well as other kinds on the quince stock, and we endorse Mr. Parry's views that grafts taken from plants on quince are not to be recommended. —Ed. G. M.]

AN INSECT DEPREDATOR ON THE APRICOT.— "L. B. C.," Richmond, Ind., says: "With this I mail you a little paper box containing two small worms that I find feeding on the foliage of my Russian Apricot. They are very voracious feeders even if they are small, but unlike most of our insects, they feed from the upper side of the leaf and can be more readily seen and destroyed than those that feed from the under side of the leaf. If the larva is familiar with you, will you kindly give us its name? May I say a good word for the Russian Apricot in this connection? Two years ago I received from Geo. F. Clark, of Odell, Nebraska, a small plant of the Russian Apricot with some other rare things, which made a fine, healthy growth during the first summer and ripened its wood splendidly, and I thought it made such a fine looking ornamental bush that I would not trust it out without protection over winter, but try to keep it in the open ground, even if I had my doubts about its fruiting value, but in my hurry to do other autumn work it was overlooked and remained unprotected during the past two winters without receiving any injury. Now, if it was not to bear any fruit, its beautiful peach-like foliage, its dense symmetrical head, and lovely peach-like flowers in early spring would command attention as an ornamental tree for lawn planting, but it does bear a very desirable fruit which makes it doubly valuable."

THE WHITE PLUME CELERY.—Mr. P. Henderson writes: "I this day send you a sample of the White Plume Celery, grown by Mr. Aug. D. Mylius of Detroit, Mich. There is nothing unusual in the size or appearance of it, but it shows the tendency this variety has for early maturity, being now in perfect condition for the table at a season when the ordinary kinds of celery are just being planted. It, however, at this season takes on less of its white or variegated character than it does in the fall. It seems that as cold weather advances the tendency to whiten increases. In the fall, when growing in the field along with the others, it shows clean, white lines, almost like a row of Centaurea. Mr. Mylius is so pleased with it that he says he intends growing it by the hundred thousand next season.

[These were admirable specimens, not only for July, but for any season. One stalk weighed 9¾ oz. and the whole bunch of six 3 lbs. 10 oz. The quality was very good, but there is nothing to say about this point, when there is nothing in season to compare it with. It is without a competitor, unless indeed some of the other self-blanching celeries, which have appeared also in Europe, should ask us for something to say in due course of time.— Ed. G. M.]

GRAPES AND CURRANTS.—A Camden, N. J. correspondent sends us a bunch of native grapes, in which all but about half a dozen berries have become currants. Just why these berries become seedless and grow to only half the size we have often guessed, but never felt positive about. Does any body know why the Corinth grape, from which the commercial currant is produced, never produces seeds, and develops to but half its grapeful size?

BURNING CURLED PEACH LEAVES. — Querist writes: "I notice in a book on peach culture before me that I am to collect the leaves of peaches stricken with the curl and burn them—what is the idea in this?"

[Truly the "idea" is not of much value, though it is often uppermost in the minds of fruit growers. The curl comes from a fungus, and the fungus increases from minute spores which in these plants of low organization take the place of seeds. The burning is to destroy these. But we fancy these spores are ever present, waiting the conditions necessary to let them germinate, and the few we burn are of little account.—Ed. G. M.]

A LIGHT CHERRY PLUM.—Mr. J. G. Youngken sends us some plums, without any note of explanation. They seem to us to be a light colored Cherry plum, and, so far as we can judge, a very excellent addition to that very useful class of plums. The Myrobolan plum is also of this class.

GRAPE CULTURE.—"L. B. C.," Richmond, Ind., says: "I have often read that one of the best methods for insuring a good crop of grapes, was to lay the vines down on the ground at the approach of winter, and if not convenient or desirable, to cover them with mulching, or what is better still, evergreen boughs, to allow the snow to cover and protect them from the sudden changes of winter, as well as protect the vines from the excessive cold.

This I tried last fall, and found it pays a big percentage on the cost and trouble it requires. By the way, why do not more people, with only space for a few vines, oftener select that good old Perkins Grape as one to grow. My vines never have winter killed at all, and never have missed a good crop for ten years. It is quite early, very fair flavor, a much sought after white (green) grape, but changing to flesh color with age. Many of our Western fruit growers highly recommend it, but somehow it does not seem to find its way into general cultivation very extensively."

[One reason why the Perkins is not better known is because it is not new enough for any one to push, and another from a prevailing impression that it is not far removed from a fox grape. Does "very fair flavor" mean equal to a first-class Concord? Few care to go below that.—Ed. G. M.]

PEAR FROM NEW ALBANY.—The fruit sent cannot be identified positively with any known here, though it has close resemblance to several.

WINDSOR CHERRY.—Samples kindly sent by Ellwanger & Barry show this variety to be of the largest size—80 to the pound; very dark red, indeed almost black, and with a very solid flesh, which should make it an excellent shipping variety. They came to hand on the 15th of July, about mid-season we suppose at Rochester.

YELLOW DOCK AS FOOD.—A lady tells us that the Indians of Nevada "use Yellow Dock for salad in the spring, and also eat it just like oxen."

FORESTRY.

COMMUNICATIONS.

ON CATALPA.

BY L. B. CASE.

Has the Catalpa controversy ended or simply quieted down for a season? I am prompted to ask this question from observing the charming effect produced by them, when planted as an ornamental tree, by their large, ample leaves, and the large clusters of deliciously fragrant white flowers. We have here in Richmond a large number of Catalpas planted along the sides of the streets for shade trees, which are now (July 1st) in full bloom; in addition to their beautiful flowers they fairly load the air with their delightful perfume, especially in the moist morning air. But, unfortunately, they are all of the tender variety,—Catalpa bignonioides,—and are a little late in coming into foliage and flower in spring, and as they all come into bloom at about the same time, but retain their great beauty only a very short space of time, they are not as desirable for general use as though a portion of Catalpa speciosa had been included in the general planting. Perhaps I should say their liability to winter-kill and backwardness in spring is often urged against their general use as a lawn or ornamental street tree; for you know that after a long, cold winter, we are all impatient to see the bare limbs and branches of our ornamental trees and shrubs again clothed with renewed foliage, as well as flowers. While we are upon the subject of ornamental trees for street planting, may I ask you, or some of the numerous horticultural readers of the MONTHLY, through its columns: Which is the best single variety to plant for use in street planting, or what half-dozen kinds of trees are the best to plant, in our latitude, to relieve the monotony of sameness along a fine residence street? In nearly all species or varieties of trees some reasonable objection may be, and indeed often is, urged against each separate one, so that many are often at a loss what to choose. For example, the sugar and red maple vegetate early in spring, but do not form a dense and compact head. The black and Norway maple forms a most beautiful head, but then it grows so slow that we are apt to get discouraged waiting for it to reach any considerable size. The Catalpa grows fast, forms a nice compact head, but is so late to vegetate that the sight of the leafless twigs so late in spring is a constant source of regret. Again, most of our standard fruit trees form fine symmetrical heads,—vegetate and flower early in spring. But when the fruit is large enough to show itself, the destruction of the limbs and branches of the trees by boys, in their efforts to get the fruit, would make the tree one of the most unsightly of objects during the balance of the

summer; and so it is if we pass the whole list of available ornamental trees under review, some strong and serious objection will be offered by many, to each one.

But to return to the subject of the Catalpa again, a subject full of interest to the tree planter, either for the lawn, street, or field for a future source of timber supply. True, the nurseryman and hybridist have not yet produced a very extended list of varieties to select from, but the natural species make it possible to obtain a form suited to almost any location in the temperate zone. A few years ago Dr. Warder gave me two varieties of Catalpa, which in American Nurserymen's Catalogue are offered for sale under the name of C. Bungeii and C. Kæmpferi. The variety known as C. Bungeii has not proved to be with me a very hardy shrub (for on my grounds it has proved to be only a shrub) as it is killed back to the main stem every severe winter; but promptly throws out a dense mass of new growth in spring, quickly forming a symmetrical globular head, but as yet never showing any signs of flowers. Catalpa Kæmpferi is perfectly hardy here, but until this spring its season of flowering was about two weeks later than C. bignonioides. This year however C. Kæmpferi flowered first, and the new, undeveloped buds indicate a protracted season of flowering. It does not seem to show any signs of making a tree, but rather a large much branched shrub. My Catalpa syringifolia is yet too small to bloom, so I cannot note anything of interest about it, but find it to be a very rapid grower. Its foliage, however, is so similar to our old speciosa, that for a small lawn it will scarcely pay to make any special effort to procure it. Buist's variety, Catalpa bignonioides aurea, makes a beautiful ornamental lawn tree in spring and early summer with its rich golden foliage, with the new leaves flushed with purple, but with the dry and parching air of this Western country the leaves assume its normal condition, and is scarcely distinguishable from its parent, C. bignonioides. It has proved perfectly hardy here, which will make it a valuable acquisition to our list of ornamental trees and well worth cultivating. Mr. E. Y. Teas, of Dunreith, has a fine variety, with purple foliage, that I do not find yet offered by nurserymen, that is very fine, and will prove quite useful in landscape gardening. Like the Golden Catalpa it is a seedling of the native species, and said to be perfectly hardy. My specimen of J. C. Teas (of Missouri) hybrid has flowered for the first time this spring, but I do not see much difference in its flowers from those of C. bignonioides. They were a few days later in opening, a little smaller, perhaps, and not so densely set in the cluster. My tree has made a much more rapid and erect growth than any other variety, and, as a timber tree is a valuable acquisition.

But what particularly interests me now in connection with this subject (aside from its timber value) is its possibilities as an ornamental tree, and this was the more forcibly illustrated in comparing a large number of perfect flowers from all the species in bloom, and also a large number of perfect specimens from a number of separate trees. As we hold up before us a complete bunch of Catalpa flowers in their full beauty and freshness, we shall see nearly all the flowers have more or less violet-purple markings in the throats, usually accompanied with small yellow spots or points. I say usually, for their presence is the rule, but the exceptions are noteworthy. Many single flowers in each bunch are pure white, while others have an entire purple throat, with fine tracings and rays of purple, often extending to the outer edge of the corolla. Now for the possibilities. We anticipate, and in our imaginations see in the near future the result of some careful and patient hybridizer in a pure white flowered Catalpa and an equally as valuable variety with violet-purple flowers, the result of fertilizing the purple flowered examples with pollen from another specimen of purple flowers, or by selecting a pure white flower and fertilizing it with pollen from another pure white flower. Of course great care and patience must be exercised in the effort, and failure and disappointment must be expected as the rule for all similar work, but perseverance will eventually crown the effort with success, and then the fortunate originator will have something to be proud of. *Richmond, Ind.*

THE LARCH IN THE WEST.

BY J. T. ALLAN.

In your July number is an inquiry about the Larch in the West. In a work just issued, "Forests and Orchards in Nebraska," the author says: "Both the American and European varieties have grown well when planted and cultivated right. The late Dr. Warder after seeing it planted on the hills of Europe expressed the fullest confidence in its success in Western Nebraska. The profit of growing this tree is not yet understood nor its value for fence posts, grape stakes, &c., after seasoning one summer. It does best when planted closely in rows four feet apart and three feet in the row. Planters should procure small plants from the

large growers. Keep them in nursery rows two years, and, most important of all, set them where they are to remain at the earliest possible moment in the spring." Hon. J. H. Masters, one of the largest planters in the State, says: "Plant in rows four feet by two, which will give a large profit in posts and poles." He urges very early planting. Mr. Samuel Barnard, President of the State Horticultural Society, is quoted in this book and he says: "The larch which I think will prove of great value on rough and broken lands where they are found on a farm and on the hills of western Nebraska, has done well with me. Trees planted ten years are twenty feet in hight and measure *nine* to fifteen inches one foot from the ground. It does best when planted in rows four feet apart and eighteen inches in the row, 8700 to the acre. Its own leaves will soon cover the ground, keeping it moist and entirely prevent weed growth."

The much abused cottonwood has been a blessing to the poor settler whose means would only allow his planting the cuttings or seedlings pulled upon the sand bars of the rivers. These soon gave protection from the fierce winter storms which sweep over the treeless prairies, and an early supply of fuel. As soon as he is able to secure the plants or nuts, the cottonwoods are only left to protect the second planting of walnut, ash, catalpa and the better kinds. The Catalpa speciosa promises to be the leading tree for forest planting. One man the past spring planted 80,000 on lands of his own 250 miles west of the Missouri river. The apple crop will be largest ever gathered in the State. Fruit very perfect and but little show of the codling moth. *Omaha, Nebraska.*

COMMON NAMES OF ROCKY MOUNTAIN CONIFERÆ.

BY J. T. ALLAN.

In your last number you refer to European planters calling what is commonly known as Silver Spruce, Blue Spruce. This is an unfortunate mistake as the Engelmann and sub-alpina present the same beautiful glaucous appearance, though not as highly colored. At first and for years we called this Abies Menziensi, till we found it conflicted with the true Menzies of the Pacific coast. In correspondence with the late Dr. Englemann four years ago, he said the growers of the United States had concluded to adopt the nomenclature of Europe, where this tree was called Picea pungens, and changing those we had called Abies, like Douglasii, Engelmann, &c., to Picea, while the class to which sub-alpina belongs were called Abies, and we have since that time adopted the change.

Picea pungens which is found in some localities of a bright green, and others intensely blue, is the easiest tree to transplant among the Rocky Mountain Sylva, if taken up before the buds are much swelled. The writer has planted largely of this variety at stations of the Union Pacific railway in Nebraska, with best success, packing the roots in sacking with moss as soon as dug, and if the weather is very hot shading on the south side till the new growth is well started. The size has been 3 to 4½ feet, and with proper handling there need not be a loss to exceed ten per cent. A large Engelmann growing at an altitude of 9000 feet which measured eight and a half feet was brought down two years ago and is doing well. The Pines, ponderosa, flexilis, aristata, and contorta, are more difficult to transplant having few fibrous roots, but by planting them in a grove of trees, with special attention a fair proportion may be made to grow. Picea pungens have made a growth the present season of 12 to 18 inches, that is, trees which have been planted here three and four years.

Omaha, Nebraska.

[The names were transposed; that is, what we formerly knew as Abies—the kinds with permanent and drooping cones, are the true Picea; and those with erect cones, breaking to pieces when mature, are really Abies. The Norway Spruce, called Abies excelsa, is really a Picea, and the Silver Fir, Picea pectinata, is really an Abies.—Ed. G. M.]

EDITORIAL NOTES.

TIMBER AREA OF THE UNITED STATES.—It is said that notwithstanding the wild statements that "at the present rate of destruction the whole of our timber will soon disappear," we have yet more acres of timber than the whole of Europe. They have 500 millions, while we have 590 millions of acres.

THE BAD LANDS OF DAKOTA AND THE WEST.—When we read of "bad lands," we take bad in an agricultural sense. But they are bad simply from the stand-point of an Indian. That is to say they are bad to hunt over. Every mile or two on an average, are deep gullies with very steep sides, like dry rivers, over which it is impossible to find crossing places. The intervening plateaus are covered by grass or other luxurious vegetation. Not the least profitable of the Editor's experiences last year, was that among the "bad lands."

THE TIMBER OF THE ASH.—The timber of the Ash is in good demand for many special purposes. Nothing has yet been found to compete with it as oars for boats.

FORESTRY CONGRESS.—The annual meeting will be held this year at Saratoga on the 16th of September. The chief subjects of discussion will be the Adirondack Forests.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

HYBRIDS BETWEEN WHEAT AND RYE.

BY E. S. CARMAN.

Last year I removed the anthers from a head of Armstrong (beardless) wheat while they were quite immature (green and small), applied pollen from rye, bound the head and so left it for two days. The binding (worsted) was then removed the palets and glumes again spread apart, rye pollen again applied and the head again bound up. In two days this was repeated and the head bound up so to remain until harvest.

Nine grains formed. These were planted in September ten inches apart. Eight germinated.

From these eight plants we have quite a number of distinct varieties. Some are bearded, some beardless; some ripened early, some late. Some are well filled with grain, some sterile or nearly so. Thinking you might feel interested I send you one of the latter. The plant bore about ten heads. In these I have found about a dozen imperfect grains some of which may grow. We have had a number of persons to look at the plants and although incredulous before, they seemed confident enough after that the plants are true hybrids. To one of these heads I again this season applied rye pollen. The head gives me three or four good grains. These should be three-quarters rye. You will please to observe the downiness of the stem near the head. This, I think, never occurs in wheat stems.

Editor Rural New Yorker, July 2d, 1884.

[The specimens, raised from wheat, have so many characteristics of rye, that we are led to believe that it is a genuine case of hybridity, and between two genera is the more interesting. Still more interesting is it to note that, though between two distinct genera it is not sterile.—Ed. G. M.]

BOTANICAL NOTES.

BY M. D.

A thistle—Cnicus occidentalis—a native of this State and Nevada, has a beautiful flower-head, the mass of its disk flowers, of a maroon or purple lake color, being enclosed in a nearly spherical, spiny bracted, and much becobwebbed involucre. The plant is gray throughout and would look well in a group upon a lawn, or on the lawn's edge against some dark setting. No thistle yet seen by me has so handsome a flower-head as this.

Of the native Trifoliums growing in this vicinity —13 or 14 species and varieties—I think T. barbigerum and T. Macræi are the most effective. The former has an inflated standard and involucred head, the latter is non-involucrate.

Were California possessed of a properly stocked botanic garden she could show in it twenty-six species of clover, besides varieties, without going without her boundaries for them. This number does not include a single species of the eight mentioned in Gray's "Botany of the Northern United States," though T. repens might make a twenty-eighth species for California, as I have myself found it once or twice growing in a roadway here.

Santa Cruz, Cal.

THE LOCO WEEDS.

BY PROF. T. C. PORTER.

I have read your note in the last MONTHLY on the "Loco weed," that makes horses crazy, in which you say, "As some half dozen plants go under the suspicion, a splendid chance to tell just what the plant is has been lost." To that I reply, others have not lost the chance.

In the spring of 1882, Dr. Isaac Ott, of Easton, Pa., a skillful investigator of the physiological action of poisons, received from some stock growers in Western Kansas a quantity of one of these Loco

weeds and made a series of careful experiments with an infusion of the plant upon various animals, and produced the same effects observed by the cattle men in the West. Its active principle is a powerful poison. The results were published in a medical journal. Dr. Ott placed specimens in my hands for determination, and I readily identified it as Astragalus mollissimus, Torr. He says, that the same thing has been proved in the case of Sophora sericea, Nutt, and that Oxytropis Lamberti, Ph., is under suspicion. Cattle and sheep are also said to be affected by these weeds, but in a less degree than horses. They are eaten in early spring before the grasses appear to furnish a more wholesome pasture, and once tasted the animal takes a liking for them. The eating may prove fatal in three or four days, or the victim may linger for a year or more. *Easton, Pa.*

EDITORIAL NOTES.

FAIRMOUNT PARK, PHILADELPHIA.—The botanists who will visit Philadelphia during the present month will miss a rare treat if they fail to visit Fairmount Park. The collection of trees and shrubs is the finest near Philadelphia, and many of the specimens are very rare. Of the Asiatic coniferæ there are many beautiful specimens. They are all labelled and with remarkable accuracy for public grounds. A recent walk through with the consulting landscape gardener, Miller, was a particularly pleasurable one. We hope to give some notes of special matter of interest in our next.

FLOWERING OF THE NIGHT BLOOMING CEREUS.—Around Philadelphia, these flower to a day, at the same date in many greenhouses. This season it was June 21st. In New York, according to the *Evening Post* of August 2d, it was "now opening its wax-like blossoms." This must have been the end of July. It would be of interest to get the exact dates in different places.

MICROSCOPIC FUNGI AS ORIGINATORS OF DISEASE.—In an elaborate discussion on disease in the peach Professor Penhallow says: "Fungi do not penetrate normal cellular structure, but remain confined to the dead tissues, or those of low vitality." Further on, discussing of the curl, he remarks, "As the fungus causing the disorder (Exoascus deformans) matures, the leaves become more and more curled and finally fall off during the month of June."

If fungi cannot penetrate the normal cellular tissues of leaves, it is not clear how they can cause the disorder known as curl or any other disorder. But in view of the researches of Berkely and others, it seems rather late in the day for the assertion that fungi cannot attack healthy vegetation, and thus produce disease, and which the Professor's own expression about the "curl" seems rather to confirm.

SCIENTIFIC EDITING.—When we look at some scientific serials, and note the stuff which passes without comment we wonder what the Editor is for; no matter how absurd or unscientific, it seems that everything that comes to hand goes in, and then is copied and recopied everywhere as the veriest truth, simply because some titular personage turned the idea loose in some "scientific" corner. In a journal of high medical standing before us is a paper by one Dr. Carlos Finley on yellow fever. He tells us the "same conditions of temperature are necessary for the life of the mosquito as for the existence and spread of the yellow fever." The writer of this has found the mosquito as bad near the Arctic Circle as at New Orleans, and this is the well-known testimony of hyperborean travelers. But the yellow fever is unknown, and this is a sample of much that passes without comment.

BLUE MOUNTAIN TEA.—Large numbers of articles have been tried as substitutes for Chinese tea, but they soon fall into disuse. This is not the case with the sweet-scented golden rod—Solidago odora. Its use commenced among the Germans in the interior of Pennsylvania, probably fifty years ago, and has continued to grow in popular estimation until it has become the exclusive drink in many sections, and has actually become an article of considerable commerce. Large quantities are now sold in Chicago at $1 per pound. Unlike many ventures it has not been palmed off as "Chinese tea, native of Pennsylvania," but is sold for just what it is, and it has worked its own way without trade tricks.

HYBRID ORCHIDS.—The question of hybrids among species of plants is one which continues to be of considerable interest with scientific men. Some time since M. Naudin, of the plant garden at Paris made extended experiments with hybrids between distinct species, and found that the notion of the sterility of hybrids drawn from two or three cases in the animal kingdom was not borne out by his facts. He found over three-fourths of his seedlings fertile. Even this proportion is

widening, and it is now believed that there is no more sterility between hybrids than we find often between individuals of the same species, and therefore when we find a sterile hybrid it is not because it is a hybrid. In orchideæ the number of hybrid species is continually on the increase, and, so far as we know, all are fertile. We give with this another illustration. It has been named Cypripedium microchilum by the raisers, Messrs. Veitch & Son, of Chelsea, near London. It is a pretty and distinct hybrid from C. niveum and C. Drurii. The flower is broader than that of C. niveum, the

Cypripedium microchilum.

upper sepal more pointed, the petals not so broad and directed more downwards. The upper sepal is white and has several dark cinnamon stripes outside, of which the middle one only is conspicuous inside; the petals are also white, and have a dark crimson middle line and lines of small spots; the lip is nearly as in C. Drurii, white, veined with pale green, but very small.

FISH-CATCHING PLANTS.—The newspapers are having a high old time over some English accounts of the discovery that the bladders of a small water plant, Utricularia, will catch small insects, and is therefore dangerous to fish spawn; and Prof. Baird of the Smithsonian Institute is represented as being much alarmed for young fish in the hatcheries by the discovery. Of course Prof. Baird knew all about this long ago, for the discovery was made by Mrs. Mary Treat, of Vineland, New Jersey, years since. There was no occasion for going abroad to learn the news this time.

VANILLA BEANS.—These are the fruits of an orchid,—Vanilla planifolia, a native of Mexico, but which extends north to the borders of the United States. Though the writer has seen it under culture for nearly half a century, he does not remember ever seeing a seed vessel produced under these circumstances. Most orchids only seed when under the attentions of insects, and perhaps this is why it yields its "beans" or seed vessels so freely in a wild state. The Island of Tahite sends out about 2,000 or 3,000 pounds annually.

FERTILIZATION OF YUCCA.—It is believed that the Yucca does not seed in Europe on account of the absence there of insects adapted to cross-fertilization. We have from a correspondent at Rome, who gathered them on the Palatine Hill last winter, fruits of Yucca alœifolia.

LONGEVITY OF THE GRAPE.—It is said that the largest grape vine in California is at Ventura, and is 40 inches in diameter in the trunk,—though only 26 years old. It is said to be now on the downward path. If the figures given are correct, it is a surprising growth for such a short time, and more surprising still that it should have such a short life.

SCRAPS AND QUERIES.

ROSE GALLS.—Mr. Shriver, of Wytheville, Virginia, sends us some very pretty galls from a rose bush. They are about the size of small marbles, thickly studded with slender spines like rose thorns. We sent the letter to Mr. Homer Bassett, of Waterbury, Conn., who is one of our leading students in this class of insect work. Mr. Shriver's letter has not been returned, but the remarks of Mr. Bassett will be readily understood without.

"The gall sent by you is that of Rhodites bicolor, Harris. Described by Dr. Harris (Inj. Insects, pp. 548–549), as Cynips bicolor. Baron Osten Sacken gave a very full description of the same in the first or second volume of the Proc. Ent. Soc. of Philadelphia. I am not certain as to the volume, as I am away from my library.

"Mr. Shriver's questions are not easily answered. In regard to the first, Why is the hollow in the gall so large? I may say that a large number of galls furnish their occupants as much, and some of them vastly more room—but this does not answer his question. As answering it in part, I may add that as a rule galls reach their full development long before the larva is full grown, and in many cases before the larva becomes large enough to be seen by the naked eye. This fact, if true of all species (it may not be), is against the theory that the growth of galls depends upon the irritation caused by the larva while feeding upon their inner walls.

"Why, Mr. Shriver asks, does this particular species take its spiny character? He quotes Dr. Haller's assertion that the origin of the gall is the germ of the flower. If Dr. Haller refers to this species, or even to species in general, I must differ with him. I am not sure that this species of gall is developed from ordinary leaf buds, but think this is the case. I know that the woolly oak-galls, C. q. operator and C. q. summator (I cannot recall the generic names of those species, lately given by Dr. Mays) are both developed from leaf buds—one species affecting the petiole of the embryo leaf, and the other the base of the leaf—and that the woolly covering is nothing but a monstrous development of the pubesceum of the leaf.

"Strange as are the forms of galls, there, is in most cases, some attempt on the part of the plant to put on some of the characters of its normal growth.

"Of course Mr. Shriver is aware that from the grubs found in galls, gall-flies are produced. These are of many species, and the common wild rose has several kinds of galls, each kind producing a distinct species of gall-fly.

"If Mr. S. should find that the galls of Rhodites bicolor produce (as they often will) different sorts of insects, he may be sure that only one of them is the producer of the gall—the others are parasitic.

"I cannot now command the time necessary to give a full reply to the questions asked by Mr.

Shriver or to write out the interesting facts they call to mind."

NAMES OF PLANTS.—"J. B.," Allegheny, Pa., writes: "I enclose samples of shrubs. Will you please name for me in September number of GARDENERS' MONTHLY? No. 6 blooms in June and July double aster-like flowers of about size and color (a little deeper) of a dandelion. No. 7 has a very handsome deep rose-colored bloom, similar in appearance to No. 4. I also enclose a flower growing wild in our neighborhood; is it indigenous? It is very free and showy and worthy of cultivation. I also send a freak from Cornelia Cook rose, taken from an apparently healthy plant in field. Are these fascicled buds (such I presume they are termed) due to a check in growth of plant, or is it caused by excessive vigor? Have seen somewhat similar cases among fuchsias and dahlias. Is it at all probable that the buds would have developed further, say by forming flower stalks, etc., as noted in case of geraniums in July number of MONTHLY? The latter occurrence I have noticed very frequently among single geraniums, particularly Master Christine. Please excuse number of questions."

[1, Spiræa tomentosa; 3, S. salicifolia; 4, S. ulmaria, double; 5, S. callosa; 7, apparently leaf of S. sorbifolia. The little flower is Sida spinosa. 6 appears to be a fragment of the leaf of a Corchorus. The rose is very curious—a number of well-formed buds being mixed up among the petals of another.—Ed. G. M.]

SELF-FERTILIZATION IN COMPOSITES.—A distinguished botanist sends us the following: "In August number of GARDENERS' MONTHLY, p. 229, you say 'composite plants are unfavorable to cross-fertilization.' Please explain, for it is the general impression that the flower heads of nearly all compositæ are specially adapted for cross-fertilization. The pollen matures long before the stigma, and the provisions for a cross seem to be excellent."

[Let us first understand what we mean by cross-fertilization. Mr. Darwin tells us. In his work on cross-fertilization, p. 22, he says he covered certain flowers to prevent the entrance of winged insects, then raises the objection that thrips run from one flower to another carrying pollen, but he says this is not cross-fertilization. Previously, at p. 10, he observes that "cross-fertilization always means a cross between distinct plants which have been raised from seeds, and not from cuttings." Hence even a mass of plants, as in the case of many herbaceous species, which often cover a large tract of ground by stolons or running root stocks, will not give flowers that can properly cross-fertilize anything around them. He illustrates this at p. 399 by a reference to the horse chestnut, which may produce "fifty thousand flowers" in a season. The bees going from flower to flower, he says, do no more than aid to self-fertilize. It is only the few flowers which may receive pollen on the first alighting of a bee to that tree which are cross-fertilized. At p. 61 he emphasizes this by giving as the result of his experiments that flowers crossed by other flowers on the same plant produce progeny even more inferior than when the flower is fertilized by its own pollen.

Now a large number of composite plants are perennial, and extend from year to year by their root stocks, extending the area from year to year indefinitely. For fertilizing purposes these plants are, in Mr. Darwin's view, practically but one plant. The extension by root-growth is an arrangement favorable to self-fertilization.

In many composite flowers, the sunflower for instance, there are many hundreds of florets. The florets open in circles from day to day. The pollen cells burst almost immediately on the opening of the floret. Often it is pushed out by the growth of the pistil, which is frequently covered by the pollen. The stigma is not then in condition to profit by pollen, but the pollen remains there until it is. The stigmas expand and the interior surface is apparently bare of pollen, but there is generally pollen enough, in centaurea for instance, falling into the cleft during the act of expansion. A single grain, among all the many thousands produced, is sufficient. But supposing this does not occur. Suppose on the second day the expanded stigmas have no pollen, this either falls from the next day's pollen crop or it is knocked down by the visiting insect pollen-gatherers. Any person may watch a head of the sunflower and see for himself that the florets are all fertilized by the pollen of the same head. Of the thousands of florets in a sunflower head we must fall back on the chance that on the first visit of the bee it may strike a floret it is not visiting for honey, to get one cross-fertilized, and not then if the bee had come from another flower on the same plant, instead of from a distinct plant—a chance that would rarely happen, and if it did, it would still more rarely happen that that cross-fertilized seed, among the thousands of self-crossed ones, would be the one to grow.

Physiologically, as well as popularly, the head of an aster, or any composite plant, is but a single flower; and though it were a fact that every floret

was pollenized by its neighbor, that could not, in any sense, be cross-fertilization.

True, Mr. Darwin does say in this same book, "compositæ are well adapted for cross-fertilization," but he evidently had in his mind at that moment what our esteemed correspondent also has, that the mere fact of the stamens maturing a day before the pistils is the whole of the story. We have seen by Darwin's own observations that this is but a very small part of it. Adaptation to cross-fertilization implies much more. The truth is, composite flowers are specially adapted to self-fertilization.—Ed. G. M.]

IMPERFECT CLOVER FLOWERS.—"J.," Montgomery county, Pa., writes: "Enclosed are some specimens of clover heads, which you will find to have produced without flowers, just as the violet does, and which the scientific call cleistogene. I was not aware before that the clover could be ranked with this class. You will see, just as in other things of that class, that every flower produces a seed."

[Though some of these flowers exactly simulate cleistogene flowers, a careful examination showed that they had been attacked by the clover-seed fly, and this attack prevented the corollas from developing further than the mouth of the calyx, where they eventually died without fully expanding. There did appear to be two fully developed seeds in each little capsule, though still green, but in with them was the larva of the cecidomya, which had in some instances commenced to feed on the young seed, and would no doubt entirely devour them before they were wholly mature.

It opens up a field for an entirely new and interesting field for scientific observation. Dr. Engelmann and Professor Riley a few years ago discovered that the Yucca moth fertilized the flowers of Yucca,—not for the purposes of cross-fertilization, as is supposed to be the special office of insects in these days of speculative science,—but with the flower's own pollen, and as it would seem to be with a sort of intuition that it was necessary to bring forward the seed towards maturity on which its young is to feed. So far as known there is no similar instance in the vegetable kingdom.

But we strongly suspect a similar case here. It is very doubtful whether the clover seed would have advanced so near perfection in its perfect condition without the agency of this little fly,—and this it has done without any relation to cross-fertilization, but in order that there may be food for its young! So far men of science will feel a very great interest in these clover heads,—but it is bad news for the clover-seed men that this foreign insect is getting such a strong hold here. Not even "humble-bees" will produce a crop of seeds where this little pest prevails.

It should be added that a large number proved on our examination not to have developed the young seed to the extent our correspondent's note supposes. The young germs seem to have been eaten away quite early, and the young larvæ seemed to have nothing left to feed on but the remains of the imperfect corolla.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

EDITORIAL NOTES.

SOUTHERN INDUSTRIES.—Bigsby & Edmunds, of Baltimore, have secured the services of Col. M. B. Hillyard, to prepare a book on Southern Industries. The work in any event would be valuable,—it is made more so by Mr. Hillyard's connection with it. Few men are better known in the North by the good work he has already done in this line.

WHAT IS A VINE.—Years ago, when the celebrated English botanist, Bromfield, was in America, he was considerably amused and wrote thereof to English periodicals, that every climbing or creeping plant should be a vine—the English keeping that term exclusively for the grape. What would he think now to read our small fruit catalogues, and find even the foliage of the strawberry spoken of as "the vines." It is a great thing with introducers of new strawberries to say "the vines are healthy."

THE SANGUINARY LOPHOSPERMUM.—The art of coining a common name out of a botanical, is as

yet by no means a fine art. One of the most sedulous of our English friends gives us the "sanguinary Lophospermum" as the result of his hard labor on Lophospermum atro-sanguineum. He could not get quite down to the "common" in Sanguineum for fear probably of being charged with using very bad language, and he was obliged to ignore altogether the "atro" in front of it, or the emphatically bad word would have shut him out from polite society. But it seems strange that the Latin should be so hard as to need reducing to "common" English, and the Greek pass unchallenged. Lophospermum is surely as bad as Sanguineum? But probably the picture of a sanguinary fellow dancing around with a club-like seed, was too much for even a "common" name reformer, and so Lophospermum escaped the chisel of the fine art man for a little while.

THE SCIENCE OF ADVERTISING.—The Philadelphia *Times* pays a compliment to Mr. Peter Henderson: "One of the best practical essays on advertising that has appeared in print was read before the late Chicago Convention of Nurserymen by Peter Henderson. It goes to the bed-rock of common sense in advertising, and is worth more to his trade and to business men generally than any other review of the question of the present progressive generation.

"The main points presented by Mr. Henderson are—first, a supply of articles to sell that are needed by the public; second, knowing the class of newspapers that reach the people who are wanted to buy; third, knowing how and when to advertise, and fourth, exercising the fertility to use good judged original methods.

"Beaten tracks in advertising are to be avoided. Advertisements should be as original, as fresh and as attractive as the best literature of the paper in which they appear, and the intelligence and character of the readers of the advertising medium are the first things to be considered. Advertising is rapidly becoming a fine art, and the more it advances as a fine art the more advertising will be done and the more profit will result from it."

DR. EUGENE FOURNIER, known to flower lovers through the very pretty Torenia Fournierii, died in June last in Paris. He was one of the founders of the Botanical Society of France, and for a long time the Secretary of its valuable "*Bulletin.*" His death is regarded as a severe loss to botanical science all over the world. He was but fifty years of age.

MISS EMILY J. LEONARD.—On the 16th of July occurred the death of this estimable lady, at the comparatively early age of 46. She was widely known as a botanist, besides the reputation she enjoyed as a classical scholar and brilliant essayist. Her home was at Meriden, Conn.

WM. L. SCHAFFER.—As we go to press, we have to announce the death of the well-known President of the Pennsylvania Horticultural Society, Mr. Wm. L. Schaffer, on the 16th of August, at his city residence in Philadelphia, in his 79th year. He had been ailing for some months, and for the first time in many years was unable to go out to his country seat in Germantown, among the flowers and fruits that he so much loved. He entered in 1818 as a clerk under the celebrated Stephen Girard, and became Cashier of the Girard Bank in 1832, occupying this position continuously till a few months of his decease. He never married; and his purse was ever open to the calls of charity or public spirited works. The Horticultural Hall, when the private company that owned it got into difficulties, was purchased by him expressly that the Horticultural Society might have a home without charge—during his lifetime at least.

THE RURAL NEW YORKER.—This excellent agricultural weekly has sold its half interest to J. S. Woodward, a well known farmer and fruit grower, who will, with Mr. E. S. Carman, be joint editor in future.

TRANSACTIONS OF THE MINNESOTA HORTICULTURAL SOCIETY.—From Oliver Gibbs, Jr., Lake City, Minn., we have pleasure in acknowledging the receipt of this, the tenth annual report, we believe. It shows a more than usually intelligent interest in horticulture in that part of the world, and we should not be surprised, in spite of the winter severity of the climate, to find Minnesota soon among the leading patrons of horticulture in our country.

PROCEEDINGS OF THE OHIO HORTICULTURAL SOCIETY FOR 1883-'84, from Mr. G. W. Campbell, Secretary, Delaware, O. The 17th annual report. It has for a frontispiece a portrait of the late Dr. Warder. Ohio was among the leaders in the great advance fruit culture has made of late years. It is pleasant to note by the great number of names that occur in this very full volume, that the old life and energy are still as strong as ever, though many of the old leaders have resigned their tasks to other hands.

TRANSACTIONS OF THE ILLINOIS HORTICULTURAL SOCIETY: TWENTY-EIGHTH REPORT.—The reports of this body are always welcome, as for some reason they impress one as possessing an in-

tellectual character, rare among reports of this class. In this one there is a paper by Prof. Burrill on the pear blight, which most persons may read several times over with profit. Prof. Burrill, as is well known to our readers, has very carefully studied this matter from the standpoint of a scientific man, and is convinced that minute organisms characterized as bacteria, are the cause of this terrible foe to the pear culturist. In this paper he not only gives additional evidence in support of this view, but goes beyond and shows how utterly impossible it is that the various "causes" given and reiterated at the many meetings of fruit growers can have any relation to the disease. It is a very able paper, as are many others in the same volume.

PRACTICAL FORESTRY.—By Andrew S. Fuller, New York, Orange Judd Company. Possibly no branch of culture has had so many worthless treatises published about it as forestry. We take up a new one with repugnance, feeling that it may be but the same old story, not even freshly told. Mr. Fuller's name however gave hope of some progress. The reader will not be disappointed. He has the advantage of an actual experience in tree culture, and at the same time a scientific turn of mind which leads him to distinguish between a mere practical notion and a notion that can be satisfactorily accounted for. We do not care to be in a critical mood when a work of undoubted merit comes before us. It may be sufficient to briefly say that those who read the work will see that we could not agree with some of the ideas put forth about forests and rainfall, and which we regard as exploded now; nor perhaps could we agree with some of the suggestions made from a purely practical point of view, and to read of "the late Dr. Chapman" was quite startling with a letter from this excellent gentleman right on the table as we write. We may hope that the author of the "Flora of the Southern United States" will yet be many years among us. We must add a word of commendation for the publishers' part of the task. Of late years works on forestry have not only been cheapened in their intellectual substance, but the binding has partaken of the same weakness. Here we have a book in which the binding is as solid and substantial as its contents. It is a treat to even look on a book like this among so many of its weaker comrades.

THE ORCHIDS OF NEW ENGLAND.—A Popular Monograph. By Henry Baldwin. New York: John Wiley Sons. This is one of that class of books that it is a pleasure to welcome. Most existing books on botany are said to be dry and hard to study. They must necessarily be so. But we have only to remember that botany does not rest with what they teach. Systematic works furnish simply the steps which lead us into the treasury of knowledge. What we are to learn of plants commences where systems of classification end. Those who give their lives to classification are doing the essential work of laying the foundation on which the perfect study is to be finally reared. And how easy it will be for us when all their hard tasks are done, books like this pleasantly show. The author, as well as the writer of this notice, could never have accomplished what they have but for the severe and life-long labors of Prof. Gray in our country and others in the Old World.

The title of this book explains its scope. The orchids are all figured not only in their natural aspects but also in detail, and any little matter of popular interest that would commend itself to an intelligent person is presented pleasantly to the reader. It is far more enjoyable reading than many a novel, and proves that the romance of plant life is an apt illustration of the adage that fact is often stranger than fiction. It is a beautiful as well as an instructive book, and a capital subject for a present to a friend.

We may note in passing that of Cypripedium acaule, it is stated that "Miss Kate Furbish discovered two perfect blossoms growing back to back on the same plant. Meehan in *Native Flowers and Ferns* gives a plate representing a plant with two buds." We suppose the reader would infer two flower buds. But Meehan's plate refers to two leaf buds or "crowns" of the future plant.

SCRAPS AND QUERIES.

TO INTELLIGENT CORRESPONDENTS.—*All communications relating to advertisements, subscriptions, or other business, must be addressed to the publisher, 814 Chestnut Street, Philadelphia.*

All referring to the reading matter of the magazine must be mailed to the editor, Germantown, Pa.

No express packages for the editor received unless prepaid; and marked "Paid through to Germantown, Pa."

MR. LORIN BLODGETT.—Our readers will remember the illustration we gave last autumn of a remarkable grape vine, growing on the grounds of Mr. Lorin Blodgett. We have the following note

from Mr. Blodgett: "My giant grape vine came near being the death of me. In the great storm of June 24th the eastern extension trellis, 45x16 ft. high, blew down in a mass, taking two to replace it. After getting it back in fair condition, I fell from a low step-ladder, and broke my left arm, two weeks ago Saturday. The crop of grapes on this vine, Rogers No. 9, is enormous,—the largest and best it has yet borne.

[It is to be hoped that Mr. Blodgett's life may be spared many years. His work on Climatology and other statistical labors will doubtless have many important additions in the future.—Ed. G. M.]

SPECIMENS FOR NAME.—In sending any thing for name, plants should either be sent so as to preserve them entirely in a fresh state,—or else perfectly pressed and dry,—and they should be complete in flower and foliage. Fragments may, by dint of much time and labor, be determined, but an editor has not that time. Here is a lot of Texan plants,—some fifty species perhaps, small tops of an inch or so, rolled up fresh, and put into a newspaper wrapper. They are rotten, and are reluctantly gone to the rubbish basket.

GARDENING AND GARDENERS.—We have a number of letters in regard to this topic, but as they all cover much the same ground already occupied in our columns, it is hardly necessary to do more than re-state the whole case, and then let it rest. It is briefly this: It requires a great amount of intelligence and practical ability to be a first-class gardener, and it is very galling to such a person when he applies for what he has been led to believe is a first-class situation, to find that the advertiser's idea of a first-class gardener is that of a mere laborer, and one to work for mere laborer's wages. That is one side of the case.

The other side is where the owner of a place has a real love for gardening and wishes to enjoy its pleasures. He tries his best to get a man of intelligence and good common sense to boot, but does not quite know just where to find him. He becomes disgusted, and lets the place "run down." It is too costly and too annoying. It is quite as common an experience as the other.

But these experiences are common in every avenue of life. The lawyer, the physician, the clergyman, is either a quack himself or finds amazing ignorance where he expected good sense. Your tailor makes misfits, and the shoemaker warmly recommended to you as just the man, you find a botch of the worst grade. It does no good that we see to worry over these things. The only remedy in our case is for gardeners to learn all they can, and then try to get all that such learning may be worth,—and for employers to remember that the best is the cheapest every time, provided they have the means to pay for the best.

GARDENERS AND THEIR EMPLOYERS.—A correspondent says: "I think Mr. Falconer has been fortunate in escaping the unpleasant experiences that have fallen to the lot of most of his fellow gardeners."

He thinks on the whole that "Fairsquare's" paper has been misunderstood. There is no doubt many good gardeners are not appreciated,—as well as many gardeners who do not appreciate a good place. There is no reason why we should not do what we can to let the community elevate a good gardener in the eyes of those who employ him,—as well as to urge gardeners to make themselves fit for the best places.—Ed. G. M.]

LONG NAMES FOR FRUITS AND FLOWERS.—An Iowa correspondent writes: "Am delighted to see the MONTHLY take a strong stand against long names for fruits and flowers. Long, and especially foreign names, are a heavy load for any candidate for popular favor. Very few can survive this infliction."

EDITORIAL TEMPER.—A Canadian correspondent writes: "You deserve thanks for the good temper you always exhibit in the many contentions you have with 'many men with many minds.'"

This simply comes from his conception of editorial duty. Possibly the truest editor may get a little mad when in the first person singular, present tense, some clod-hopper treads on his little toe; but when the "I" becomes "we," his dignity finds no place for the usual weaknesses of common humanity.

LABARAX SOLUTION.—In regard to these expressions in the paper by Dr. Thomas Taylor, in our last, "W. R. G." writes: "Saxifax and Sassafax are not uncommon corruptions of sassafras, but I believe "labarax" for "Labarraque's" (solution) is something entirely new in the way of an effort toward a phonetic mode of spelling. The French apothecary who desired that widely-known preparation would shudder were it permitted to him to gaze upon page 233 of the GARDENERS' MONTHLY, where an employe of a prominent department of a great government "labaraxes" him several times! What the French would call le borax does not enter into the preparation, if that was the idea underlying the peculiar orthography, or, better, cacography.

HORTICULTURAL SOCIETIES.

COMMUNICATION.

MASSACHUSETTS HORTICULTURAL SOCIETY.

BY W. A. MANDA.

The Rose and Strawberry Show of the Massachusetts Horticultural Society, which was held on the 24th and 25th of June—two days instead of one as in previous years, was the finest show of the kind ever held at the hall. Roses were shown extensively, and prizes offered were perhaps the highest ever given by any Society for roses. The first prize was the Silver Challenge Cup, value $200, beside six other silver cups varying from $50 to $15. Messrs. John B. Moore & Son were awarded the Challenge Cup for twenty-four varieties, three of each, for which they were the successful competitors for the three successive years. The blooms were large and perfect. Among the dark varieties may be noticeable Abel Carriere, Duke of Connaught, Baron Bonstetin, Pierre Notting, La Rosiére Glory of Cheshunt, and many others equally as good.

Mr. W. Gray, Jr., won a silver cup with twenty-four blooms in varieties. Mr. W. H. Spooner two silver cups, one for eighteen varieties three blooms of each, and one for twelve blooms in variety. Mr. John L. Gardener also was awarded two silver cups for twenty-four blooms in variety and eighteen blooms in variety. Mr. J. S. Richards won the sixth silver cup with six blooms.

The display of roses was also beautiful, and was contributed by Mr. F. Hayes, Messrs. Moore & Son, J. S. Richards, Mrs. E. M. Gill, Messrs. Norton Bros., Mr. B. G. Smith, Mr. W. Spooner and Mr. Warren Heustis.

A silver medal was given to Mr. G. S. Richards for a new Pillar rose, named by the Society "Boston Belle," which will prove a good addition to the numerous varieties.

Mr. Francis Hayes had a nice collection of Rhododendrons, Herbaceous Pæony and Clematises. Mr. C. M. Hovey exhibited Sweet Williams and Herbaceous Paeony. Gloxinias came from Mr. L. H. Farlow. Mr. Shapard had an unrivaled collection of Sweet Williams, and Mr. J. W. Manning a display of hardy herbaceous plants. Vases of flowers were sent by Miss Sarah W.Story, Mr. J. O'Brien and Mrs. E. M. Gill.

In the Flowering Specimen Plants Class Mr. H. E.Hunnewell showed fine specimens of Rhynchospermum japonicum, Stephanotis floribunda, Clerodendron Balfourii, Tabernæmontana coronaria fl. pl., and especially noteworthy were some finely flowered specimens of Pelargonium, not usually seen this side of the Atlantic, which were awarded a silver medal. Mr. J. L. Gardner had also fine plants of Ericas, Rhynchospermum, Polygala and Azalea. Orchids were numerous and fine specimens. Mr. H. E. Hunnewell had Cattleya Mendelii, C. labiata var., C. Mossiæ and a variety which could be called C. Mossiæ marmorata, with pale sepals and petals finely blotched and marbled, and which received a silver medal. Another pleasing novelty was C. superba. There were also Odontoglossum Pescatorei, O. Alexandræ, Dendrobium thrysiflorum and D. infundibulum, Oncidium crispum, Ærides affine var. superba, Cypripedium biflorum and C. barbatum. Amongst this was a fine specimen of Bertholonia Van Houttei, also a pair of Nertera depressa. Mr. F. L. Ames exhibited also a variety of plants; amongst them Odontoglossum Pescatorei with a spike carrying sixty-two perfect blooms, and Epidendrum vitellinum majus with twenty spikes; Masdevallia Harryana var., magnifica and var., Bulls Blood, Cattleya maxima, C. Eldorado splendens, Odontoglossum Alexandræ, O. vexillarium superbum, O. maculatum superbum, Epidendrum prismaticarpum splendens, with its telling color. The new Zygopetalum Sedeni, Cymbidium Schwartzii and Cypripedium Stonei. Mr. David Allan, grower to Mr. Pratt, had some fine specimens of Cattleya Mossiæ in vars., C. intermedia Epidendrum nemoralis majus with 11 spikes, which was certainly the best specimen orchid in the hall, but was overlooked by the committee. Further, a fine specimen of Odontoglossum cordatum which unfortunately was not enough advanced, and Ærides odoratum, intermixed with some rare

Japanese Ferns; one of them, Lomaria japonica, was awarded a silver medal. Mr. E. W. Gilmore exhibited Cattleya Mossiæ, C. Mendelii and a fine Dendrobium heterocarpum var. Philippiense. Mr. J. L. Gardener had Cypripedium barbatum, C. Lawrencianum, Cattleya Mossiæ and an extra good variety of Cattleya Mendelii.

In the lower hall was a great display of strawberries, a quantity of splendid berries. Mr. Geo. Hill was the first with a basket of Sharpless, and took the silver cup. Another noteworthy variety was the "Belmont," raised and exhibited by Mr. Warren Heustis. Beside this there was a quantity of other varieties filling the hall with their perfume. A general variety of vegetables were also shown such as beets, onions, lettuce, peas, tomatoes and cucumbers. Mr. Francis Hayes also contributed nice bunches of Black Hamburg grapes.

The stairs were decorated with nice bushy plants of evergreens from Mr. W. C. Strong; and so as to quality and quantity of the exhibits and the taste in arrangement nothing more could be wished.

Now, before leaving this subject, I think it will not be out of place to say something about the prizes and encouragement given to some of the different departments.

Considering the variety and costliness of orchids, the difficulty in flowering them, also the injury they receive in transporting them to exhibitions, any one would be surprised at the poor encouragement this class receives. What is the reason for this? Show after show, we see more space filled with better and better specimens, and without exaggerating, there is no other class of plants that is so admired and appreciated by the numerous visitors, and yet till this day, the exhibitors, out of shame, hide the prizes they are awarded from the public eye. Further, it would be desirable that in awarding these prizes a consideration would be given to grown specimens against made-up ones.

Cambridge Botanic Gardens, July 15, 1884.

EDITORIAL NOTES.

HORTICULTURAL DEPARTMENT OF THE WORLD'S FAIR AT NEW ORLEANS.—We have from Parker Este, of Cobden, Ills., the premium lists of this great affair. As we have said before, the exhibition will be one no progressive horticulturist can afford to ignore. The Mexican government alone has taken five acres for its horticultural display. Excellent arrangements have been made for receiving and properly exhibiting anything that may be sent, and every arrangement is made for specimens of excellence in either large collections or single specimens. For instance, though $250 are offered for the best 200 varieties of apples, $6 are offered for the best plate of Baldwins, of Northern Spy, or of any variety known or unknown, and so with everything in fruits, flowers or vegetables. Every one interested in horticulture should send for programmes and instructions to E. A. Burke, Director General, New Orleans.

HARDY FLOWERS BLOOMING IN JULY.—As showing what good things may be in flower at this period of the year the following list of herbaceous plants, shown by J. W. Manning, Reading, Mass., at the Mass. Hort. Society's meeting, July 19, 1884, will be very useful:

Galium boreale,
Veronica spicata,
Achillea tomentosa,
Anthericum liliastrum,
Asclepias verticillata,
Coreopsis lanceolata,
Gypsophila paniculata,
Spiræa ulmaria,
Monarda fistulosa,
Lathyrus latifolius,
Lythrum salicaria,
Rudbeckia maxima,
Asclepias tuberosa,
Dicentra eximia,
Hypericum pyramidatum,
Clematis coccinea,
Hibiscus moschentos,
Heliopsis lævis,
Platycodon grandiflorum,
Liatris spicata,
Malva Alcea.

MASSACHUSETTS HORTICULTURAL SOCIETY.—At the meeting of July 19 a special feature was an exhibition of wild flowers by two competitors—one by Mrs. Richards had thirty-four species, Mr. Hitchings had eighteen. At the Germantown Horticultural Society's meeting as many as seventy, and on one occasion a hundred have been on the table in bloom at one time. These exhibits do much to make known the great beauty of our native flowers. Fay's Prolific currant was exhibited, and pronounced more acid than the white Gondouin exhibited at the same time.

It was voted to take an active part in aiding Boston exhibitors to do credit to the great exhibition at New Orleans, and also to be represented at the great French exhibition in Rouen. Dr. H. P. Walcott will represent the society there.

At the meeting on July 26th the bouquets of sweet peas from J. H. Woodford were much admired. All the fruits of the season—raspberries, currants, blackberries, gooseberries, and early pears were represented by good specimens; of gooseberries very large specimens of Speedwell were shown by Warren Fenno, and Whitesmith by Mrs. E. M. Gill. In the vegetable department the most noticeable exhibit was by B. K. Bliss & Sons of New York, of vines of Bliss's Abundance and Bliss's Everbearing peas. One of the former bore seventy-one pods, and one of the latter seventy-five, and another (of the latter kind), which was not counted, was thought to have a hundred pods. They were raised on the eastern end of Long Island, N. Y.

Mrs. P. D. Richards exhibited a fine collection of native flowers, and we give the list, as it will be a good indication of what pretty herbaceous plants may be in flower at the end of July:

Nuphar advena,
Linaria Canadensis,
Lechea minor,
Hypericum perforatum,
" ellipticum,
" Canadense,
" mutilum,
Malva,
Spiræa salicifolia,
" tomentosa,
Desmodium Canadense,
Penthorum sedoides,
Circæa lutetiana,
Galium circæzans,
Helianthus divaricatus,
Lobelia cardinalis,
Lysimachia lanceolata,
" ciliata,
Verbena hastata,
Cuscuta Gronovii,
Alisma plantago,
Sagittaria variabilis,
Eriocaulon septangulare,
Eupatorium purpureum,
Antennaria margaritacea,
Gerardia flava,
" quercifolia,
Pycnanthemum lanceolatum
Chimaphila umbellata,
Brunella vulgaris,
Scutellaria galericulata,
" lateriflora,
Pontederia cordata,
Elodea Virginica,
Dianthus Armeria,
Saponaria officinalis,
Polygala polygama,
" verticillata,
Mentha Canadensis,
Veronica scutellaria,
Anagallis arvensis,
Prunus pumila.

GLASS

For GREENHOUSES, GRAPERIES, CONSERVATORIES, HOT HOUSES AND HOT BEDS.

VANHORNE, GRIFFEN & CO.,

IMPORTERS OF FRENCH WINDOW GLASS. ALSO AMERICAN WINDOW GLASS. tau12

131, 133, 135 & 137 Franklin St., New York City.

rt of Grafting and Budding

By CHARLES BALTET,

ppropriately and fully illustrated by 186 cuts, showing ethods, tools and appliances. Pp. 290, 12 mo. cloth, flexi- e. Price $1.25 mailed, postage free. Address,

CHAS. H. MAROT, 814 Chestnut Street Phila.

ASPARAGUS CULTURE.

e BEST METHODS EMPLOYED in ENGLAND and FRANCE.

BY JAMES BARNES AND WM. ROBINSON.

With translations of Mr. Lebœuf's Essay on Asparagus, d particulars of the seven years competition instituted r its improvement. Illustrated with wood cuts. New ition. 84 pages. 50 cents by mail on receipt of price. Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

RANBERRY CULTURE.

BY JOSEPH J. WHITE

mbodying in plain and concise manner all the useful and ractical facts which study and experience have yielded to e inquiring Cranberry grower of the present time. 126 ges, 12 mo, cloth. Illustrated. Price, post-paid $1.25. ddress, CHAS. H. MAROT, 814 Chestnut St., Phila.

FRUIT GROWER'S FRIEND.

AN EASY GUIDE FOR THE

Raising of Fruits for Pleasure or Profit

BY R. M. HAINES.

Paper, 84 pp., 8vo, price 30 cents; mailed post-paid on receipt of price. Address,

CHAS. H. MAROT,
814 CHESTNUT STREET, PHILA.

ROSES IN POTS;

observations on their Cultivation including the Autobiography of Pot-Rose,

by WM. PAUL.

92 pages, cloth, illustrated. Price, $1 00

Sent Prepaid by mail on receipt of price.

CHAS. H. MAROT, 814 Chestnut Street, Phila.

A MANUAL OF VEGETABLE PLANTS,

BY ISAAC P. TILLINGHAST,

Containing the experiences of the author in starting all those kinds of vegetables which are most difficult for a novice to produce from seed; with the best methods known for combating and expelling noxious insects and preventing the diseases to which garden vegetables are subject. 108 pages, 16mo, cloth, price, $1.00, mailed, post-paid, on receipt of price. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

SECOND-HAND BOOKS

BY MAIL ON RECEIPT OF PRICE.

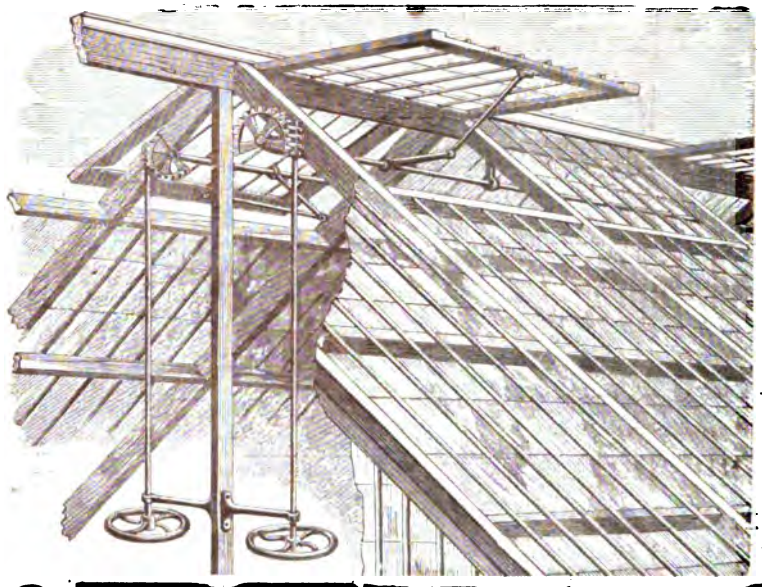
SPEAK QUICKLY IF YOU WANT THEM.

☞ Say in your order, "Second-Hand List." ☜

llen's Domestic Animals	$1 00
" American Farm Book	1 00
" Rural Architecture	1 00
rt of Propagation	20
eet Root Sugar, Grant	1 00
icknell's Village Builder & Supplement, Fol. (plates)	6 50
ommer's Method of Making Manures	20
rackett's Farm Talk	50
reck's New Book of Flowers	1 45
ridgeman's American Kitchen Gardener	50
utler's Family Aquarium	50
haynor's Diseases of the Horse	1 00
oultas' Principles of Botany	50
owning's Cottage Residences	1 25
" Landscape Gardening and Rural Archit..	4 50
" Rural Essays	2 85
mmon's Agriculture of N. Y., 3 vols. 4to, plates, &c.	15 00
ruit, Flower and Vegetable Gardener's Companion..	1 00
ulton on Peach Culture	1 25
rape Culture and the Strawberry, Buchanan	75
ray's Lessons in Botany	1 00
" School and Field Botany	2 25
reen and Congdon's Botany, Quarto Illustrated	1 50
alf-hours in the Green Lanes, Taylor, Illustrated	1 75
Harris on Injurious Insects, colored plates	5 50
Hey's Mrs., Sylvan Musings, 23 col. plates, full calf	5 00
Hoffey's N. A. Pomologist (Dr. Brinkle) 36 col. plates, Quarto	3 00
Hooper's Western Fruit Book	1 00
" " "	50
Klippart's Land Drainage	1 25
Lee's Mrs., Trees, Plants & Fl'rs col. plates, full calf.	6 00
Lee's Mrs., Trees, Plants & Flowers col. plates, cloth..	4 50
Liebeg's Turners' Chemistry, 1394 pp., 8vo	3 50
Loudon's Encyclopædia of Gardening, ½ turkey	10 00
MacDonald's Food from the Far West	2 00
Mayhew's Illustrated Horse Management	2 50
McIntosh's Orchard, with colored plates	3 00
Minot's Land and Game Birds of New England, Ill'd..	2 50
New American Gardener	75
Parson's on the Rose	1 15
Paxton's Hort. Register, 2 vols. in one (1831-1833)	1 00
Philadelphia Business Directory, 1879, Boyd	25
Prince on the Vine	75
Prince's Pomological Manual	75
Randall's Sheep Husbandry	1 25
Rand's Flowers for Parlor and Garden, cloth	2 25
" " " ½ tky, gilt edges	2 50
Riddell's Architect, folio, 14½x17½ (col. plates)	10 00
Scribner's Log Book	20
Stewart's Stable Book	1 25
Studies, by J. A. Dorgan	75
Talpa, or Chronicles of a Clay Farm	75
The Plant, a Biography, 5 col. plates and 13 wood eng's	2 50
Thomas' Fruit Culturist	1 75
Todd's How to Make Farming Pay	2 00
Tull's Horse-hoeing Husbandry	1 00
Waring's Elements of Agriculture	75
Williams' Window Gardening	1 25
Woodruff's Trotting Horses of America	2 00
Wood's Class-book of Botany for Schools	1 00
Young Angler Illustrated	75

Address, **CHAS. H. MAROT,**

814 Chestnut Street, Phila.



EXETER VENTILATING APPARATUS.

Best and Cheapest in the Market.

Adapted for all Styles of Houses.

Illustrated Catalogue upon application.

GREENHOUSE HEATING

BY STEAM, BY HOT WATER, BY COMBINATION STEAM AND WATER.

EXETER MACHINE WORKS,

50 FEDERAL ST., BOSTON, MASS. tf12 WORKS—EXETER, N. H.

GREENHOUSES HEATED

BY LOW PRESSURE STEAM.

mh12 SATISFACTORY PERFORMANCE OF APPARATUS GUARANTEED. ADDRESS,

E. H. BOCHMAN, - - - - Box 373, Pittsburgh, Pa.

Architects' and Builders' Pocket Companion AND PRICE BOOK,

By FRANK W. VODGES, Architect.

Consisting of a short but comprehensive epitome of Decimals, Duodecimals, Geometry and Mensuration, with tables of U. S. Measures, strengths, etc., of iron, wood, stone and various other materials, quantities of materials in given sizes and dimensions of wood, brick and stone, and a full and complete *bill of prices for Carpenter work*. Also, rules for computing and valuing brick and brick work, stone work, painting, plastering, &c., 284 pages, 16mo, cloth $1.50. Tuck, $2.00. Sent by mail postage free, on receipt of price. Address,

CHAS. H MAROT, 814 Chestnut St, Phila.

Kissena Nurseries.

Trees and Plants.

Parsons & Sons Co.,

LIMITED.

Flushing, N. Y.

ftf

1884. PENNA. STATE FAIR. 1884.

OPENS SEPTEMBER 8, CLOSES SEPTEMBER 20.

On the New, Convenient and Permanent Grounds,

BROAD ST. AND LEHIGH AVE.,

PHILADELPHIA.

$41,000 In Premiums for

Manufactures, Machinery, Implements, Produce, Live Stock, etc.

Pennsylvania State Agricultural Society.

with the co-operation of the

STATE HORTICULTURAL ASSOCIATION, AND PENNSYLVANIA HORTICULTURAL SOCIETY,

In a Grand Display of Fruits and Flowers.

WOMEN'S SILK CULTURE ASSOCIATION

Producing, Spinning and Reeling Silk.

PHILADELPHIA KENNEL CLUB,

Bench Show of Dogs.

STATE POULTRY SOCIETY,

Incubators and Domestic Fowls.

ENTRY BOOKS POSITIVELY CLOSE SEPTEMBER 2.

Premium Lists on application to

JAMES MILES, President.

D. W. SEILER, ELBRIDGE McCONKEY, Sec'ts.,

N. W. Cor. 10th and Chestnut Sts.

OCT 1 1884

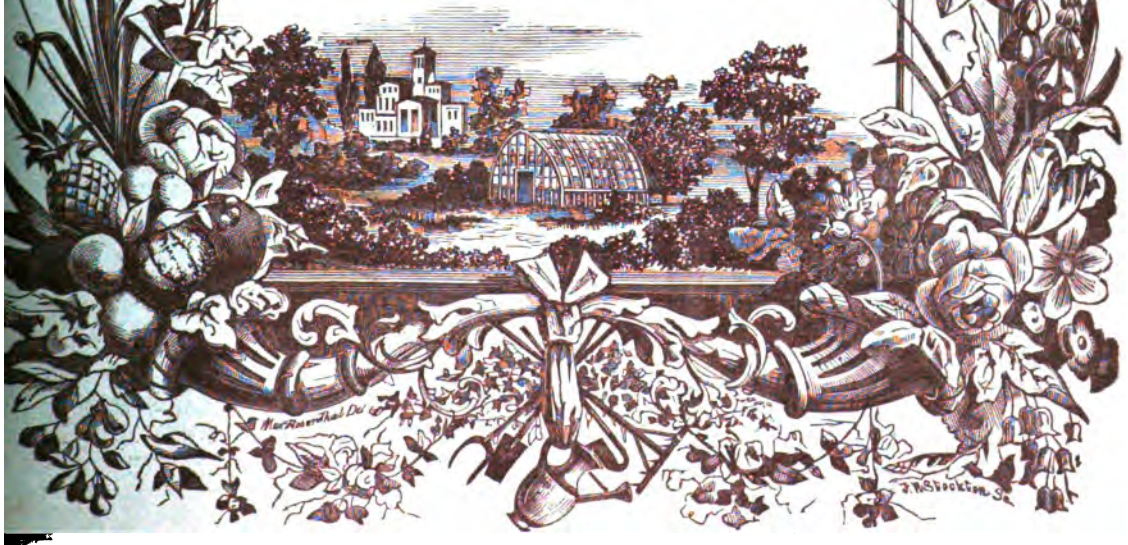
Harvard College Library

THE GARDENERS' MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

Vol. XXVI. No. 310.
(Combined Magazines, Thirty-ninth Year.)
OCTOBER, 1884.

PUBLISHED BY CHARLES H. MAROT,
814 Chestnut Street, Philadelphia.



[Entered at the Post Office, at Philadelphia, Pa., as second-class matter.]

THE GARDENERS' MONTHLY

AND HORTICULTURIST.

It is published on the first of every month at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS relating to subscription or advertising should be addressed.

☞ Communications, Copy and Packages for the Editor should be addressed to THOMAS MEEHAN, GERMANTOWN, PHILADELPHIA.

SUBSCRIPTION PRICE, POSTAGE PAID, $2.00.

ADVERTISING RATES IN THE GARDENERS' MONTHLY:

	¼ col. or 12 lines.	⅓ col. or 16 lines.	½ col. or 24 lines.	⅔ col. or 32 lines.	¾ col. or 48 lines.	1 col. or 96 lines.	1 page, or 192 lines.
One Insertion	$3.00	$4.00	$5.50	$7.00	$10.00	$18.00	$35.00
Two times, each	2.90	3.90	5.00	6.80	9.00	17.00	33.00
Three " "	2.80	3.75	4.75	6.55	8.50	15.50	30.00
Four " "	2.70	3.60	4.50	6.30	8.10	14.40	27.00
Five " "	2.55	3.40	4.35	5.95	7.65	13.60	25.50
Six " "	2.35	3.15	3.93	5.50	7.05	12.45	23.50
Seven " "	2.30	2.95	3.65	5.15	6.60	11.75	22.00
Eight " "	2.05	2.75	3.45	4.80	6.15	10.95	20.50
Nine " "	1.90	2.45	3.20	4.45	5.70	10.15	18.85
Ten " "	1.75	2.30	2.85	4.05	5.25	9.30	17.45
Eleven " "	1.60	2.15	2.65	3.75	4.80	8.55	16.15
Twelve " "	1.50	2.00	2.50	3.50	4.50	8.00	15.00

Twelve lines nonpareil is ¼ col. A less space than ¼ col. will be furnished at same rate per line as ⅛ col.

For space on FLY-LEAF and COVER PAGES, also FIRST PAGE advertisements facing last reading page, 20 per cent. advance on above rates will be charged.

CHAS. H. MAROT, Publisher, 814 Chestnut St., Philadelphia

CONTENTS OF THE OCTOBER NUMBER.

SEASONABLE HINTS:

Flower Garden and Pleasure Ground 289
Greenhouse and House Gardening 294

COMMUNICATIONS:

Geranium Heterantha 290
Hardiness of Japan Maples 290
Summer Notes 291
Recollections of Beautiful Australian Plants 295
The W. F. Bennett Rose 298
Treatment of Palms 299
A Dahlia for Florists' Work 299
Culture of Amaryllis 299
A Sure Remedy for Destroying Moles 302
The Hornet Raspberry 302
Peach Root Aphis 303
Pear Blight 303
Western Fruit Notes 304
Peculiar Variations in Nature 310
Microscopic Parasites 310
Food Instincts of Animals 310

EDITORIAL NOTES:

The Public Squares of Philadelphia—Combination Fences—Combination Plants—Ancient Gardening in America—One Who Likes Moles—Management of Public Works—What is a New Plant?—Bad Effects of Lawn Mowers 292-294
Stock for Grafting Oranges—Seeds from Richardia Æthiopica—Heat and Water—Dwarf Oranges—Azalea, Miss Buist—Pampas Grass Plumes—Spontaneous Combustion 299-300
Immediate Effect of Crossing on Fruit—What is Good Tree Planting?—Fruit Growing in Oregon—A Cure for the Yellows—A New Curculio Remedy—Preserving Grapes in Winter—Apple Barrels—The Lutie Grape—New American Raspberries—Marlboro Raspberry—A Large Virginia Vineyard—Rancocas Raspberry—Protecting Strawberries from Birds—Pea Nuts—Protecting Cherries from Birds—Mealy Bug—Downing Peach—Asparagus Bean—Welch's Prolific Quince—The Missouri Pippin Apple—Heavy Crop of Jerusalem Artichokes 305-308
A Forest Planting Company—Canadian Forestry—Fruit of the Nettle Tree—White Oak—White Pine in West Virginia—Tanning Material in California 309
Calodendron capense—Popular Science—The Shell Mounds of Florida—The Loco Weed in Texas—Primula obconica—Variations in Nature—Wild Grapes in Nova Scotia—The Tuckahoe, or Indian Bread—Do Tree Trunks Elongate?—Duration of Life in a Honey Bee—Sugar from the Oregon Maple—The Hydrangea as a Tea Plant—Poor Man's Plaster 310-315
Fairmount Park, Philadelphia—To Make Attar of Roses—The Botanical Club of the American Association for the Advancement of Science—The Grave of Dr. Engelmann—Meissonier as a Horticultural Joker—The Northern States of North America—The Grave of Frederick Pursh—John Williamson—Lemuel Clapp—Ignatius Sargent—Augustus Faul—Mr. E. A. Carriere—Fallacies in Progress and Poverty—Bibliography of the Lily—Drugs and Medicines of North America 316-320

NEW OR RARE PLANTS:

The Cayenne Cherry Tree: Eugenia Michelli—Rare Plants in Flower at the Missouri Botanic Gardens, at St. Louis—Crossandra infundibuliformis 300-301

SCRAPS AND QUERIES:

Fruiting of the White Flowered Rosa rugosa—Canna brilliantissima—Snowdrop Trees—Painting Wounds in Trees 294
A Large Potato Crop—Olives in Texas—The Grape Rot—Reed's Early Golden Peach 308
Evaporation from Trees in Winter Time—Yucca for Tanning—The May Beetle—Effect of Stock on Apple Graft 315-316
Favors to Correspondents—The Government and Market Produce—Night-blooming Cereus 320

FLOWER GARDEN & PLEASURE GROUND. 289-294
GREENHOUSE AND HOUSE GARDENING 294-302
FRUIT AND VEGETABLE GARDENING 302-308
FORESTRY 309
NATURAL HISTORY AND SCIENCE 310-316
LITERATURE, TRAVELS & PERSONAL NOTES 316-320

OCT 1 1884

THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

VOLUME XXVI. OCTOBER, 1884. NUMBER 310.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Landscape gardening is one of the most delightful pursuits of country life, and those who wish to get as much pleasure as possible from their gardens, cannot study it too much. Not only the many acres of a large place, but the limited area of a small one, will afford scope for much in this way.

Persons who have small places, are often exercised as to the best way to lay them out. A too common error is to attempt too much. Having read of fine specimens of taste, or imbibed a love for the art from superior work on landscape gardening, or some friend's extensive country-seat, it is quite natural to wish to make the most of a limited plot. And this making the most of the thing implies a good deal, while it leads into many errors. The relation of the means to the end should never be lost sight of; nothing attempted that has not some well-defined object, and these objects will change from year to year. The mistake of the old writers on landscape gardening, was to take as they supposed what a place would be in ten or twenty years, and with this picture in the eye, plant for the future, the present being almost wholly sacrificed. When the landscape gardener was done with it, no one dared touch anything. The place was to grow into beauty from year to year. Except for public parks, or corporation gardens, this great art has not been popular in our country. Few people feel that they are to live and die on one spot, and as the property is usually sold and divided when they have done with it, the garden features may not be appreciated by those who follow. Hence the landscape gardening for the future is not as popular as it was once in the old world, and immediate results are chiefly sought for. The greatest pleasure is often derived from making changes from year to year, just as our means or necessities may permit.

Roses, and many other things which flower from last season's wood, and which wood it is therefore important to preserve, may be saved by having the branches laid down under the soil. The tenderest kinds of roses may be preserved successfully in this way.

Bulbs, as hyacinths, tulips, crocus, etc., if not already planted, should be at once proceeded with. A very rich sandy soil is the choice of the tulip and hyacinth. They should be set about four inches beneath the soil, and a quantity of sand put around each bulb. After planting, a covering of manure may be put over the place of planting, for reasons already given. Ground-mice—some say moles, also—are at times very destructive to these roots. No efforts should be spared to trap and destroy them. It is a very good plan to soak peas

in water until they begin to swell, when they should be rolled in arsenic and buried in different parts of the soil near the beds. All the different kinds of lilies, including the most beautiful and rare kinds of Japan lilies, are perfectly hardy, and beds of these are among the handsomest and sweetest adornments of the pleasure-ground through the summer and autumn months. A very dry soil does not suit these. A rich and strong loam, rather inclining to dampness, will grow them to perfection.

When the leaves have fallen, many will commence pruning. Properly, summer is the proper time to commence pruning; the winter should be the time the job commenced in summer should finish. The object of pruning in the winter season is to impart vigor to the tree, or to cause branches to push next season strongly and vigorously in such parts as it may be desirable to have them. A tree which is already growing very vigorously, and is shapen according to our best wishes, can receive no advantage from pruning now. Any branches that cross each other, or that are otherwise misplaced, may, however, be cut out. Any trees that have arrived at maturity, and have some parts apparently weakened or decaying, should, on the other hand, have a thorough overhauling now. All scars made by the sawing off of any of the larger branches, should be painted over to keep out the damp, and to preserve them sound till the new bark shall grow completely over them This is a very important matter. Many fine trees are prematurely lost through this neglect. The wood decays, water enters, and the tree soon becomes hollow and worthless. We always use paint, but others use gum-shellac dissolved in alcohol, a bottle of which they always keep on hand ready for the purpose.

This is also a good time to cut away any trees that it may be desirable to take down. When a place is first planted, many common trees are set in with the choicer ones, with the design of taking them away as the better ones grow. These, when becoming thick, should be gradually thinned out.

COMMUNICATIONS.

GERANIUM HETERANTHA.

BY MR. A. VEITCH.

Some eight or ten years ago, a semi-double Geranium was imported from England under the name of Heterantha which in this locality has given the utmost satisfaction, being a vigorous grower, and producing freely fine heads of scarlet flowers of nearly the same shade as the well known variety, General Grant. Very many varieties have been added to the list of late years, but none to surpass this one for bedding purposes. So fully have its merits become known that in some establishments preference is given to it over all others; and certainly as I saw it last year, no error of judgment has been committed in making the choice.

This plant is identical with the one sent out last Spring by Mr. P. Henderson as Double General Grant. A mistake which might have been committed by its being brought to his notice without a name; and from the resemblance it bears to the old General, in color, he might have supposed Double General Grant appropriate enough. But as there is a recognized rule in botany not to give a new name to an old plant, this rule applies though in a subordinate degree to such plants as come under the head of florist flowers, and by the observance of which much confusion is prevented.

New Haven, Conn.

[Agreeing with Mr. Veitch as to the impropriety of changing names, and to the importance of adhering to priority in adopting a name, it is yet to be regretted that a good garden variety of a geranium should have been baptised under a Greek name. We should be glad if some leading authority would revise the Canons, and insist that Greek and Latin shall be confined to botanical names, and that florist's names shall be "common" stock.—Ed. G. M.]

HARDINESS OF JAPAN MAPLES.

BY FRED. W. KELSEY.

There seems to be much discussion pro and con, as to the hardiness of the new Japanese Maples for this climate. As is usually the case, both sides are positive, and draw their conclusions largely from their own observation and experience. Mr. Walker would make out that they are much more hardy than the average fruit trees in Indiana, while some of our friends as far south as Baltimore claim that they should be classified, as to hardiness, with the Eucalyptus or Indica Azalea.

Having imported and dealt in this class of plants quite largely for a number of years, and had them tested under different conditions in various localities, I conclude that both these claims are right in general, but wrong in particular. The happy medium between two extremes is in this—as in most instances—very near, or quite the truth.

The fact is, the Japan Maple, like our native species, covers a large number of varieties. Some of these are entirely hardy as far north as Massachusetts, others half-hardy, and still others adapted only for greenhouse culture. This covers the whole subject in a nutshell. Of the thirty varieties I have imported, as near as I can ascertain, about one-third belong to each class.

Of the hardy sorts, such as the Atropurpureum, Ornatum, Sanguineum, Aureum and Variegatum, there is little or no question as to their success where good plants are procured and the ordinary amount of care exercised in arranging and caring for them. On the other hand, if the tender or half-hardy varieties are planted in the open ground, the loss of the plants is not only the natural, but the inevitable result. Nature is as positive in this as in her other conditions, and we should learn her requirements more fully, before attributing failure to a foreign and inapplicable cause.

Plants of the hardy varieties were put out in exposed situations about Boston, on the Hudson, and other severe locations, five or six years ago. Without any protection, or even preparation of the soil, they stand to-day in a wealth of foliage and perfect vigor, the admiration of every beholder.

If this does not prove their hardiness beyond question, will some skeptic who believes they should all be treated as exotics, kindly inform us what kind of proof he needs?

New York City, Aug., 1884.

[All the Japan Maples are exotics. None are indigenous to our country. The term "hardy" is one of wide application. As a general rule, in most people's minds, it will mean, when we are speaking of trees or shrubs, such as will stand pretty rough weather at a temperature of about zero. To the best of our belief, all the Japan Maples may be called hardy in this sense. If there be any kinds that will be generally killed, we shall want to insist on the qualification. Under that condition, we should be glad of a list of the varieties.—Ed. G. M.]

SUMMER NOTES.

BY MRS. R. B. EDSON.

The season in Massachusetts has been so propitious that the freshness and verdure of June crowns these last days of August right royally. Frequent rains and absence of scorching suns, has developed a luxuriance of leafage altogether marvelous. Each individual plant is elbowing his neighbor, and making frantic efforts to crowd him out of bed. Like the fellows in the walking matches, each one seems possessed of the insane determination of "beating his record." And they are succeeding, too, to the unbounded delight of the spectators.

I am greatly pleased with three of the newer roses—introduced in 1881—and not yet common, viz.: Glory of Cheshunt, Ulrich Brunner and Pride of Waltham. They are all healthy and vigorous growers and prolific flowerers. Set out in May, '83, from three-inch pots, tiny plants not over four or five inches in height, they had grown in this one year to fine stocky bushes of two feet, or more. And such roses! Ulrich Brunner bore off the palm for size and richness of coloring, being a splendid shade of cherry red. The flowers were five inches, or more, on an average, and of that fine cupped form, with deep petals, that never falls apart under any provocation, until it falls entirely off. Pride of Waltham is of the Eugenie Verdier type, but far superior, I think. It is of perfect circular form, the outer row or two of petals reflexed, the remainder turning toward the centre in globular form. It is very full, with large petals, and shades from the most exquisite salmon-pink in the centre, to the faintest apple-blossom flush of dainty flesh on its outer petals. Alas! that it should not be fragrant, no more than the rest of that family. It has at this writing (August 26) several of its large, exquisite flowers open, as perfect as those given in June. Glory of Cheshunt is a velvety-red rose, smaller in size, very double and very fragrant. They have all flowered well, in August, which is, perhaps, after all, their greatest recommendation, so many so-called perpetuals being simply annuals. I find Monseiur E. Y. Teas one of the best, also, both as a remontant and a magnificent sort at any time, though only a moderate grower. Another of the new sorts, Heinrich Schultheis, a very beautiful pale-pink rose, is also said to be a fine autumn flowerer. I set out, the middle of May, a wee plant of this sort, from a two-inch pot. As it is now in bud, I conclude the truth was told about it. Alas! alas! that it is not always, as many a poor deluded amateur knows to his sorrow.

And speaking of disappointments reminds me of one big humbug that I feel it my solemn duty to furnish with a "character." I refer to that wretched fraud, Gynura aurantiaca. "An elegant bedding plant." "A formidable rival for the Coleus." "The beautiful purple plush plant," etc., etc. Now, the honest facts are, that it is a coarse-looking weed with dingy bluish-green leaves of unattractive

form, and having no foundation for all these panegyrics save a few purple hairs on the underside of the young leaves before they unfold, and at the petioles of the younger leaves. Why, as for beauty of foliage, it doesn't "hold a candle" to our common mullen's soft green silkiness. I fancy it would "astonish the natives" who see it on its native heaths—wherever that may be—to know that a country which has so many beautiful indigenous plants as America, should pay fifty cents (the price it was sent out in '83) for a small bit of this coarse weed to ornament their gardens. Thinking how they would chuckle over it, if they only knew, has been the only pleasure I have had from my investment. G. A. itself, now lies with some other buried hopes, in the compost heap.

Impatiens Sultana is a plant upon which I have had two very decided opinions within as many months. I had, during the early part of the season, my tomahawk all whetted and ready for its scalp. Now, said tomahawk is wrapped in several thicknesses of apologies and laid away. Impatiens Sultana has earned a right to live. I had my plant through the mail about the twentieth of May. It was perhaps five inches high, and from a two-inch pot. It grew rapidly from the first, but the sun scorched its leaves, its few flowers were hidden under the foliage, and it made no show at all. This up to about the middle of July, since when it has grown in beauty most marvellously. It is, at this date, about two feet high and considerably more than that in diameter, with a dozen large branches from the bottom an inch and a half in diameter, with scores of side branches from each, and every shoot crowned with its bright carmine blossoms. I think there are at least one hundred flowers on it all the time, often twice that. But the illustrations of this plant are deceptive in that they represent the flowers thrown well above the foliage, which they are not. Like the annual members of this family (Balsams) the leafage is dense, and has to be nipped out judiciously to show the flowers to advantage. It is, however, a very bright clean-looking plant, and the color of the flowers is exquisite.

I have growing side by side the two (?) large-flowered Cannas, Iridifolia and Ehrmanii. I have looked at them in every possible light, and neither in foliage or flower am I able to see the faintest shade of difference. What puzzles me is to understand why, after Iridifolia had been in the market half a dozen years, (at least) selling at fifty cents each, that all at once it should disappear from the catalogues, and in its placecome Ehrmanii at $1.50 each! Odd, wasn't it? And yet the ordinary cultivator could be equally "happy with either, were t'other dear charmer away."

One of the things about which there is not the faintest suspicion of humbug is the Cactus Dahlia—D. Juarezii. It blooms early and continuously, and the flowers are truly splendid.

I have been experimenting this Summer with seedling Gloxinias. From one paper of seed, sown early in March, I got over one hundred plants. Not having space for all, I selected seventy-five of the strongest, and have had blooms from some twenty sorts, to date, and no two alike, and not one poor one. The flowers have varied in being from two and a half to three inches in diameter. As they have never had anything but ordinary room culture, I consider my experiment a marked success. There are many more in bud—they have averaged about four blooms apiece—and the variety in the foliage, which is in itself a constant gratification, it is so beautiful, gives promise of many more varieties. Another Summer I shal look for fine resul s from these young, healthy bulbs. My thanks are due to a writer in the MONTHLY for the suggestion, as I had not thought they were so easily grown. I do not find them nearly as difficult as the Chinese Primrose, either in starting or carrying through the Summer. The latter are the most exasperating little things. They want water, and they don't want it, the sun scorches them, and the shade makes them spindling; the dirt in which they will condescend to put out their dainty roots must be "made to order," and musn't interfere with their leaves, or off they go on a tangent. But when the dark days come, and the "winter of your discontent" is upon you, they grow suddenly repentant, and hold up their dainty clusters of bloom for peace offerings, and you forgive them joyfully, and love them all the better for the anxiety they have given you; so true is it that the difficult is the dearest. *Melrose, Mass.*

EDITORIAL NOTES.

THE PUBLIC SQUARES OF PHILADELPHIA.—In the old city of Philadelphia, some half a dozen plots of ground of six or eight acres each were set apart for the "health and recreation of the people forever." Money enough to keep them decent has always been voted, but they have reeked with filth, and have been scarcely decent. The clamor for something better has led to an expenditure of some $30,000 each on several, and the "improvements"

turn out something like those which the Londoners are giving the celebrated Burnham Beeches.

Franklin square was eminently a people's square. The walks which led around the square have been taken away and the whole area sodded, and the people are huddled like crowds of sheep around a fountain in the centre. The neat iron fence which surrounded the plot has been taken down, and a granite edging about a foot high set up around it. At the entrance to the avenues, square granite pointed posts have been set up, which are already greasy and dirty beyond description at the apex and sides, and striped and fragrant with attar de chien from around the base. The removal of the boundary walks and thus curtailing the seating capacity, leads the poorer classes to use the granite curb, and the writer has seen as many as sixty poor wretches thus resting themselves; reminding one of the way side beggars of Continental Europe. The gravel walks which once absorbed the filth of the tobacco chewer, have been removed, and asphalt walks which keep it all for the public view, put down in place; and the whole affair reminds one of a badly kept cemetery.

We believe that those who have engineered the matter through have done so under an earnest impression that the result will be improvement. But we are sure that when the uses of a public square are fairly considered, and compared with what has been done here, the verdict will be "money thrown away." The squares are in the Department of Markets and City property. It is not necessary to the successful management of this department that its controllers should have any knowledge of landscape engineering,—and parks and public gardens should form a separate department or sub-department before the public has any right to expect better results from these expenditures.

COMBINATION FENCES.—Barbed wire strung on temporary cheap posts, and then some enduring living plant set out along it, make an everlasting fence. Such fences are growing into popularity. In the South the Macartney or Cherokee rose, is the plant preferred as the companion to the wire.

COMBINATION PLANTS.—Hydrangea paniculata is rather a coarse shrub when at a near view, but it has a charming effect when seen at a little distance. Recently we saw an attempt at a combination with it which though by no means the best that could be made increased the beauty of the huge white flowers. Some tree Lantanas had been placed in the middle of a circle of the Hydrangeas, and around the Hydrangeas a lot of Petunias. It was a gay mass.

ANCIENT GARDENING IN AMERICA.—The South American Indians were in a measure agriculturists, and had many things under culture of which the origin is unknown. The potato was so cultivated, and was common in Indian gardens from Chili to New Grenada. It is remarkable that none of the plants grown in this way can be traced to Asia, and if the Indians came from Asia and made colonies here, they did not bring these things with them. The articles in question are evidently of American origin, but of which the originals are lost.

ONE WHO LIKES MOLES.—This is what an Indiana man says: "Last year I put twelve moles in my strawberry patch of five acres, to catch the grubs, and they did the work. I never had a dozen plants injured during the summer, either by the grubs or moles. I know some people do not care for moles on their farms, but I want them in my strawberry patch."

There was a mouse that asked a cat for protection against a dog that was worrying it. The cat drove the dog away, but in the end the mouse got the worst of it. We fancy few people envy the man with the strawberry patch and the moles.

MANAGEMENT OF PUBLIC WORKS.—In the Kensington Gardens, near London, it is reported that over 300 trees died within the past year, and it appears the earth was filled in two or three feet all over them. This smothering of the feeding roots will kill any tree. Besides this practical lesson, we refer to it because, while sorrowing over the horticultural ignorance displayed in the management of our public parks and gardens, we are often told that they know better in Europe than to put people in charge of such places who do not know their business; but we see, by these cases, that it is about the same all the world over.

WHAT IS A NEW PLANT?—Most horticultural societies offer premiums for new plants, and the result is often a dispute as to whether the plant is new or not. Generally some one can be found who knows he has seen the article long, long ago. The New York Horticultural Society decided that a new plant is one that has not been exhibited before at its meetings. This is a delicate compliment to its own eminence, as well as setting at rest a vexed question.

BAD EFFECTS OF LAWN MOWERS.—It is now some years since the GARDENERS' MONTHLY pointed out that the close cutting which came into

use with improved lawn mowers, was the ruination of good lawns, and when complaint has been made about lawns wearing out, or small, creeping weeds crowding out the enervated grass, we have recommended to set the knives higher. We now find by the London *Gardeners' Chronicle*, that even in that lawn-favored region they find close mowing destroying the grass. It recommends, in many cases, the knives to be set a half or three-quarters higher than it is. Even this is very high to an American lawn-keeper.

SCRAPS AND QUERIES.

FRUITING OF THE WHITE FLOWERED ROSA RUGOSA.—"W. A. S.," New York City, writes: "In the MONTHLY you say Rosa Rugosa alba does not fruit with you. It does with me. Woolson says it does with him."

CANNA BRILLIANTISSIMA.—A plant sent to us under this name last year, proves to be a rich ornament to the flower garden. The metallic purple lustre of the leaves is unequalled by any that we have seen.

SNOWDROP TREES.—"W. A. S.," New York, writes: "Your N. Y. correspondent writes of Halesia tetraptera in Central Park. There are scores of them there. I never saw the tree further South—but I remember an immense one in the Park—for our latitude. As I remember it, it is 18 inches in diameter of trunk. I have not seen it for a year and may be mistaken."

[Halesia tetraptera is rather common in gardens about Philadelphia. H. diptera is scarce, and H. parviflora wholly unknown.—Ed. G. M.]

PAINTING WOUNDS IN TREES.—"R. V. P., Cincinnati O., asks: "Is there not often a great deal of unnecessary work in gardening, recommended under the idea of doing things properly? For instance I read 'always put a coating of shellac or some similar plaster over the wound when you cut away the branch of a tree.' Now I notice that the very best gardeners about here never think of doing any thing to a wound, and as the bark and wood soon grow over, why should they?"

[Our correspondent is right in the idea that much that is recommended is childish trash, but he is singularly wrong in his illustration, for all wounds by the cutting away of a large branch should be painted with something to keep out water and insects, till the new wood grows all over it. Water and boring insects cause wood to decay fast, and when once a decaying spot starts the fungus soon follows and makes it worse; many a valuable tree has had its life shortened by the decay from a neglected wound.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

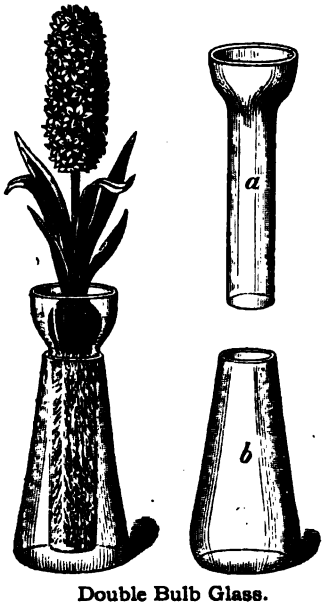
SEASONABLE HINTS.

If one wants to grow house plants well, the best lessons can often be had from some cottage window. It is surprising how well they often do. Some say it is because their owners love them; but love, without intelligent care, will not avail much. Why they often do better in a poor window than a richly-appointed greenhouse, a friend tells us, is because the greenhouse people coddle them too much. As with trees, too much care is often the worst of care. It seems to us the successful household seldom worries about re-potting often. The plants having plenty of roots in a smallish space, can take a great deal of water without injury. Not being over-potted, they do not get over-watered. Then loving fingers often turn over the leaves, and if an insect pest appears it is done for at once. These ravagers are not allowed to remain long enough to do much damage, and there is no worrying over tobacco, soap, hot water, or some nauseous compound, to be employed at much sad labor to get things to rights again. Success with house plants cannot be taught by a magazine; it must be born of love and matured by experience.

There is quite an art in lifting plants from the open ground into pots, if they are to go on and bloom all the winter time. It will not do to let the leaves wilt much, or they will not get up again

They have to be taken with reasonable ball, put into the smallest possible pot, well watered at once, and placed temporarily where the drying air will not draw the moisture from the leaves. The florist who has to lift Bouvardias or Chrysanthemums from the open ground to benches in the greenhouse, so as to have them in flower all winter, keeps the greenhouse closed, for a few days, so that the moisture cannot get out. He syringes, to add to the atmospheric moisture, and even shades the glass, for it is now known that light is as great an evaporator of water as heat itself. One with a few plants need not go to all this trouble, but can apply the lesson from the larger scale to the smaller one.

Chrysanthemums are becoming again, after having been down to zero in fashion, one of the



Double Bulb Glass.

most respectable of plants. They make a window or greenhouse gay until almost February, with proper care. They take a great deal of water, and if it is liquid manure-water, all the better, unless the soil is already very rich. It is now almost the universal custom to grow them in the open ground, in summer, and then lift into small pots at the present season of the year. But some plants will not lift well and go on flowering as if nothing happens, and of these is the ever-adorable rose. These must be grown in pots all summer, to flower in winter well.

Dutch bulbs, though as popular in outdoor culture as ever, have not been met with as window plants as frequently of late years as they once were, though for why, no one knows. They are very beautiful and very sweet, and that they can be grown in water, and without the filth and constant attention required by pot plants, has always given them an additional interest. There was, however, always one drawback even to water-culture: the glasses would get filthy inside, and could not well be cleaned, and especially if, as is often desirable, some fertilizing material be added to the water. This difficulty has been overcome by an ingenious invention introduced by Mr. J. C. Schmidt, of Erfurt, Prussia, here represented. It is simply a double glass. The bulb and its roots can be taken out and placed temporarily in other water while the outer one is getting cleaned.

COMMUNICATIONS.

RECOLLECTIONS OF BEAUTIFUL AUSTRALIAN PLANTS.

BY WM. T. HARDING.

Wherever progressive man has settled at the antipodes, happily most of the trees, shrubs, and flowering plants, still remain, much as nature left them; simply, because the cruel creature said to have been created in God's own image, absurdly called a sportsman, could derive no inhuman pastime in their wanton destruction.

Besides having no warm blood to shed, and being more difficult to annihilate, there could be no quivering of lacerated flesh to gloat over; nor mute appeal from the expressive eye, which in vain might look for pity, alas! where mercy is unknown. Fortunately on that account, many representatives of the vegetable kingdom have been spared, to give beauty and comfort to our intelligent fellow creatures, who have sense enough to appreciate them. And, as the writer was informed, the primeval Australian landscape which delighted your correspondent years ago, when there, with its umbrageous beauty and solemn grandeur, has little changed since the three illustrated persons, Captain Cook, Sir Joseph Banks, and Dr. Solander, first gazed upon the glorious scene; and, at the suggestion of Banks, appropriately named the flowery locality Botany Bay.

In 1606, the Dutch first landed on this great terra incognita, and from the inherent love of the land they left behind them, named it New Holland; now, better known as Australia. The famous English Captain Dampiere visited it in 1688; and after a few weeks spent on shore, left to continue

his cruise again. This roving adventurer arrived there again in 1699, and after a longer investigation, returned, and reported to his sovereign the many strange sights he had seen. After which, this wonderful island continent remained unoccupied by Europeans, until 1770, when the intrepid navigator, Cook, discovered, and landed upon that part of the coast, previously mentioned, in New South Wales. Since the time of the last named date, the country has been mostly explored, and has furnished many thousands of interesting plants to all civilized lands. In fact, it would be extremely difficult to properly fill with pleasing variety, the modern conservatory, were it not for the immense resources of Australia and S. Africa, which for many years have been so largely drawn from.

Desiring to create a lively interest in whatever tends to make us a happier or better people, I am encouraged to lay before the reader a few fragments of personal experience, among the remarkable vegetation of that paradoxical land. And those who may have not, as well as those who may have previously followed my wanderings, years ago, will pardon me, I trust, when briefly returning again, (on paper) to the flowery lands beyond the sea.

Leaving Gundagai, N. S. W., for a long journey through the solitudes of the wilderness, to Gipps Land, Victoria, I propose calling attention to a few beautiful flowers with which Nature had so lavishly scattered and sweetly scented the way. And with this object before me, I fondly hope they will receive the same appreciation in this country they have in Europe. And to whosoever's heart expands at the sight of a flower, I cordially recommend the following species. On the fourth day out, after losing sight of all signs of civilization, distracted with the horrible shrieks and yells of myriads of noisy cockatoos, parrots, parroquets, love birds, and other harsh, discordant kinds, we emerged from among the bulky forms of lofty Eucalypti, whose remarkable prophylactic properties were then unknown, to a more open, park-like country, over which were scattered irregular little copses of Banksias, Santalums, Grevilleas, Petrophillas, Proteas, and similar pretty bushes. Clinging to their stems were several kinds of lovely Kennedyas, as, for instance, K. coccinea, K. Marryattii, and K. rubicunda, with Jasminum divariciatum, Hardinbergea Comptoniana, and H. monophylla. The curious Pachynema complanatum and Craspedia plebia covered much of the sandy ground in the Wattle groves, which changed the features of the beautiful open forest glades. Through a narrow opening in a dense belt of Darwinia fascicularis, and the remarkably handsome flame trees, Telopia speciosissima, the brilliant blossoms of which are frequently mistaken for bush fires, in the distance, we entered a jungle of Malbee scrub, or Eucalyptus dumosa. Evidently we were following the faint traces of a native pathway into a maze, and where, possibly, the foot of civilized man had never before made its impression, and which led to an aboriginal burial ground. The shallow graves, which exposed most of the skeletons, picked clean by the myriads of monstrous-sized ants which infest that country, presented nothing more noteworthy than the regularity of form in which they had been buried under a cluster of curious grass trees, Xanthorrhæ hastilis. But scarcely had we left the sombre place before we were confronted with many beautiful examples of the natural order, Epacrideæa. And of the elegant genus Epacris, and its alliances, I saw many old acquaintances promiscuously mingling in the less dense parts of the thicket. Their beautiful tubular-shaped flowers closely resemble those of Ericas, but with broader and stiffer leaves. There were Epacris pulchella, well named, which is one of the lovely pinks; while E. impressa, in crimson attire, with their pretty sisters, E. onosmæflora, with features suffused with rubicund tints, ; while E. alba and E. nivalis, white as snowflakes, are bland and beauful, and favorably contrasted with the vermilion lips of E. miniata, which seemed as modest as E. maxima's dark crimson blushes. Neither did E. purpurascens look less lovely through her rich purple veil, than the comely-featured E. campanulata, a graceful roseate beauty. Nor in less degree did their interesting allies, though of other species, which on every side seemed to display their unrivalled charms, appear to less advantage among so much floral elegance. And especially did the pretty Cosmelia rubra (now rarely seen in the best collections), with its profusion of red flowers, the scarlet Stenanthera pinifolia, with the green-flowered Styphelia viridiflora, and S. tubiflora, with its bright red coral-like tubes, appear less interesting than their elegant compeers, which follows. The pink Lysinema lasiantbum and white Lucopogon striatum; Templetonia glauca, Bæckia gracilis, Platylobium formosa, Erisotemon ericifolium, and Crowea saligna, which, in the wildest luxuriance, covered the ground for many miles, through which we picked our devious way. And frequently interspersed, as under shrubs, over which huge Eucalyptus of from three to five hun-

dred feet high cast their flickering shadows, were such beautiful and interesting little shrubs as the truly elegant blue-blossomed Hovea Celsi and lilac-colored H. villosa and orange-colored moth-like Bossiæa microphylla, and pretty, odorous red-flowered Boronia serrulata, than which the sweetest scented remontant rose is not more agreeably fragrant than this interesting little favorite. B. paradoxa is a most singular red-flowered kind, and appropriately named.

Correa speciosa is a remarkably showy, scarlet-blossomed plant, with Pultenia stricta, yellow, Dilwynia floribunda, and Daviesia cordata, of the same shade, and pleasing habit. Tetratheca rosea, scarlet Chorozema ovata, and peculiar Gompholobium polymorphum, yellow, are all splendid plants, the sight of which contributed much to make the journey exceedingly pleasant.

Neither did my interest diminish in the least, when weary, hungry, and parched with thirst, as we plodded along until we reached a deep and picturesque ravine. Providentially, in the bottom, surrounded with large tree ferns of Alsophila Australis and Cibotium Billardeira, handsome palms of Livistonias humilis and fine Charlwoodia congestas, we discovered a shallow pool of water margined with Goodenia hederacea and covered with Hydrocotyle pulchella. Stagnant and malodorous as it was, we nevertheless made our campfire not far off, to cook our wallowby and damper with, for supper, and afterwards to sleep and dream by through the night.

Fatigued as I was, and while Somnus gently pressed my weary eyelids down, I was abruptly awakened by some nocturnal animal, which as suddenly disappeared as I instantly slipped out of my kangaroo rug. To sleep afterwards seemed impossible. In fact, so brightly shone the silvery moon from the clear blue arch of heaven, and refulgently illumined the forest with her soft and steady sheen, that I at first mistook the clear light for early morn, when Phœbus first beams over the eastern hills.

Now fully awake to all things around, I readily yielded to the seductive charms of Flora, and in the still watches of the night, while my companions slept, communed with the flowery goddess alone. Among many favorites, I found Pittosoporum Andersonii, Burtonia miniata, Pimelia linifolia, Roellia ciliata, Podolobium staurophyllum, Burtonia minor, and the curious Smithia sensitiva, Acacia liniaris, A. lanigera, A. pulchella, A. suaveolens, A. decipiens, and A. amœna, Leschenaultia formosa, L. Baxterii, Stenochilus glabra, Pleurandra acicularis, Hibbertia linearis, and the pretty blue terrestrial Orchid, Calandena cœrulea, and yellow Petrostylis obtusa, also Pteris falcata, Schizæa bifida, Lindsæa media, and Doodia media. Attracted by the fluttering of a wounded bird which lay at the foot of a tall tree fern, Dicksonia antarctica, I perceived a Phlanigesta vulpina, a fox-like animal, crouching among the beautiful crown fronds. The poor bird the nocturnal beast had killed was known as the bell bird, whose clear, ringing note, when heard in the solitude of the forest, is often mistaken by the stranger for "the sound of the church-going bell," and the animal, in its haste to climb up the fern, had dislodged a mass of the beautiful Dendrobium speciosum, which clung to the ancient trunk, at the foot of which grew the finest tuft of Allantodia tenera I ever saw.

While preparing for an early breakfast, we were somewhat startled at the appearance of an immense drove of kangaroos, (among which was a white one) coming bounding down the opposite side of the glen at a tremendous pace, and making some immense leaps of from twenty-five to thirty-five feet at a jump. Apparently, the poor affrighted creatures were fleeing from some alarming cause. Possibly, a group of evil looking cannibals, we observed prowling about among the bushes the day before, had disturbed them; and from whom they were scampering away with astonishing speed. For a time, we seemed in imminent danger of being run over and trampled to death, in the furious stampede they made toward us; when, fortunately, our loud shouts and excited gestures frightened them off in another direction.

If the narrative had been continued in proper consecutive or chronological order, mention would have been made of a novel sight we witnessed a few days before, when gazing from the highest point of the Australian Alps, which overlooked Gipps Land, and the broad Pacific beyond. While admiring the wonderful scenes, our attention was drawn to the noisy jabbering of a number of miserable savages, near by, who were diligently engaged in their epicurean researches, about the tree trunks. Watching their actions closely, we observed they were searching for the long fat worms, (big borers) several inches long, which live within the trees, and on the discovery of which they were eagerly drawn out, and swallowed with evident satisfaction. Many years before, I remembered looking at an excellent steel engraving of "Martin Luther at the Diet of Worms, in 1521"; while before me, was the living picture

of the diet of worms, actually taking place in 1852. And, from the apparent gusto with which the vermiculous tit bits were disposed of, I am led to believe they were as equally enjoyable to them, as are the macaroni meals of the Italians.

All had hitherto gone on well with us, until one of the party had the misfortune to get bitten on the foot with an ugly looking centipede. It had crept into his boot during the night, and on putting it on again in the morning, the venomous thing bit him. The violent pain and swollen condition of our companion's foot and leg, had for several days made locomotion impossible. So, improvising a stretcher out of two strong sticks and a kangaroo skin, upon which we carried the poor fellow many a weary mile; until with the aid of a pair of forked stick crutches, he managed to hobble along, with occasional helps on the stretcher, until we reached Port Albert. While waiting for a vessel to take us to our destination, I made the discovery of a number of interesting ferns, trees, and shrubs. Acropteris Australis, Asplenium difforme; the curious sword fern Piphopteris heterophylla, and Nothochlæna distans. The pretty Ixodia achellioides, the wrinkled bark Diospyros rugulosa; the turpentine tree, Tristania albicans; Croton rosmarinifolia, Schizomeria ovata, Calytrix glabra, Eudesmia tetragona, and Pinus Novus Hollandicus. The time of embarcation having arrived, we were soon on the watery way for Melbourne, from whence we afterwards sailed to Adelaide, South Australia, and in due time landed there.

Possibly among so many interesting plants to choose from as Australia presents, the reader may think the selection a meager one. But, when informed many omissions were necessary, in order to lay before the good flower loving public a reduced number sufficient to stock a fair sized greenhouse, with species from other lands, the reason will be obvious. As the few mentioned are extremely beautiful, and not difficult to grow, (as are Cape Heaths, of which more anon) if set in well drained pots, in a compost of peat, loam, and sand, they will supply the demand for "something not so common." Those desiring a more extended list, may profitably consult the MONTHLY'S pages from 1871, up to date, where I have more fully dwelt upon Australian vegetation.

Wishing to foster a love of the beautiful and sublime in nature, and especially to encourage the innocent and enjoyable pursuits of floriculture, the writer thus hopefully concludes.

Mount Holly, N. J.

THE W. F. BENNETT ROSE.

BY HENRY BENNETT.

Your correspondent, Edwin Lonsdale, in the July number, in noticing the Tea Rose "Duke of Connaught," states: "There are few roses will pay as well as the Duke. Will the 'William Francis Bennett?'" Having raised both of these roses, I think I can speak with some authority. Of course I cannot tell how these individual roses do in the States, but here the latter pays ten times as well as the former. "William Francis Bennett" is the earliest and most persistent bloomer. I generally house them on the 1st of December, and have always had the first cutting not later than the 15th of January; it has never failed to flower in six weeks after being started, even in our dull, smoky atmosphere. In 1883 we began cutting the first week in January, and took cuttings daily (Sundays excepted) till the 1st of July; the plants were then turned out a perfect blaze of bloom. The price for blooms was from 10s. per dozen to 2s. 6d. per dozen (the lowest price). The plants were grown in pots six inches in diameter, were not shifted all the time, and had only a very little manure-water. I have never met with any rose that would produce half the quantity of blooms under glass. There is an error in stating this rose to be a seedling from Baroness Rothschild; it was seeded from Adam, or President, crossed with Xavier Olibo. I have been trying all I can to get a seedling from the same cross, without success. Perhaps it may interest your readers to know on authority that "William F. Bennett" will, in all probability, be in commerce in May, 1885, as, at the request of so many of my correspondents, wishing to possess this rose, I think it only right to withdraw the restriction. The matter is now in Mr. Evans' hands, as to the price and time of distribution.

I have been growing Sunset and Perle des Jardins under precisely similar circumstances, and they appear identical in growth and habit, but the blooms of Sunset are not quite so full, which I think an advantage. It is almost sure to be a popular rose. Perle des Jardins is not a profitable rose under glass, with me. I can always get the second batch of William F. Bennett before I can cut a single bloom of Perle des Jardins.

Shepperton, Middlesex, England.

[Are we to understand from Mr. Bennett's communication, that from a lot of the Duke of Connaught and an equal lot of the W. F. Bennett, the two grown under the same circumstances, that for

every $100 produced by the former the latter will yield $1000? This is what we should understand by "pays" in this country.—Ed. G. M.]

TREATMENT OF PALMS.

BY ERNEST WALKER.

The Palms all being natives of warm climates, are necessarily slow growers, and in the case of Palmetto, or Chamerops, the woody, fibrous stipules, seem specially designed to protect the young leaves from injury through too rapid development and exposure to the hot rays of the scorching southern sun. I find cutting this tough, thready, stipular fibre around the stem allows the leaves to develop more rapidly, and greatly facilitates growth. *New Albany, Ind., July 8, 1884.*

A DAHLIA FOR FLORISTS' WORK.

BY M. M. GREEN.

I enclose two blooms of a Dahlia which I find a very useful flower in our cut flower work. It may be old, but I think it originated in our grounds about four years ago. I have never seen it anywhere else, nor shown it to any one who has seen it. It is a good bloomer, having commenced this year in May, and we expect it to continue till frost. We have some 30 to 40 plants. They all have this type, except that they vary in the number of rows of petals, as you see—always 2 or 3—but always showing a good yellow centre. It keeps well after being cut, and we hope these will be fresh when they reach you. They were cut this Monday morning, at 7 o'clock—7th. We use it for sprays for ladies to wear, for the decoration of flower work, etc., and it is invariably liked. *Louisville, Ky.*

CULTURE OF AMARYLLIS.

BY A. G. LEWIS.

I have been very successful in the culture of Amaryllis, and offer my experience for the benefit of the readers of the GARDENERS' MONTHLY. I have some almost always in bloom through the whole Summer months.

In October I put the pots on a hanging shelf in the cellar, and water about once a month till February, when I shake out of the pots, and reset in the same pots with fresh earth. It rarely requires a large pot to get a good blooming bulb. Four inches is large enough for most kinds. After repotting, I put them on the shelf again, and water once a week till about the 20th of May, when I place the pots out of doors in sun or shade as most convenient. In a few days they begin to bloom, and some of them throw up flowers several times during the season. I have a number of varieties, and they give me as much pleasure as any flower I grow. As the flowers open I take the pots into the house, where the flowers are always admired. For day or night decoration nothing can be grander, and they always excite admiration. For those who have no greenhouses they are just the thing. *Youngstown, Ohio.*

[We are glad to have the ease with which these beautiful flowers may be cultivated, so ably, and yet briefly told. We shall be much surprised if it does not lead to a general inquiry for them.—Ed. G. M.]

EDITORIAL NOTES.

STOCK FOR GRAFTING ORANGES.—In Florida they find Limonia trifoliata a good stock for the orange. It is an East Indian species, and known as Triphasia Aurantiola, in some botanies.

SEEDS FROM RICHARDIA ÆTHIOPICA. — The common calla rarely produces seeds, but an article by Mr. Henry, of Dijon, in the *Revue Horticole*, speaks of his raising plants from the seed. Richardia maculata seeds abundantly in America.

HEAT AND WATER.—Moisture is a great absorbent of heat. We keep the atmosphere in some classes of greenhouses moist, in order to avoid changes of temperature, which are more rapid where the temperature is dry.

It takes more coal to maintain a temperature at a certain point than a dry one, but where success is aimed at, it is not the first cost that tells.

DWARF ORANGES.—In the land of the orange, dwarfs have a standing as well as in the land of the apple and the pear. As in the North with the quince for the pear, a slow grower is selected to graft the stronger kind on. The Otaheite orange is the kind usually employed to make a dwarf orange. The standing of a dwarf orange is about that of a dwarf pear; that is, one can get a few in a small space, and earlier than on a standard stock; but if one wants full and profitable crops they must wait till the standards bear.

AZALEA, MISS BUIST.—Under the misname of Mrs. Buist, the *Garden* has this good word for

this American variety: "When this Azalea gets better known and has had time to attain a good size, it will be found to be a most valuable plant for many purposes. In habit of growth, and indeed in all respects but the color of the flowers, it is an exact counterpart of amœna. Its white flowers, whether on the plant or cut, cannot fail to please. It is unfortunately a slow grower, but as it possesses so many good qualities we can afford to put up with that failing."

PAMPAS GRASS PLUMES.—In California, Florida, and other places South, there is a large business done in growing Pampas Grass for the sake of the plumes. The *Florida Dispatch* gives the following method of preparing them in that section: "Cut plume stalks at least two feet long, just as soon as the end of the plume shows through the sheath; strip off all the outer integuments down to the plume, very carefully, and spread the plumes on clean papers in the full glare of the sun for a few days, or until they expand fully. Then keep them in a dry place, free from dust."

SPONTANEOUS COMBUSTION.—During the present summer a stable in Philadelphia burned down, undoubtedly from heat generated by manure piled against it. Those interested in gardening do not understand, as clearly as they should do, what is meant by spontaneous combustion. The following remarks on the burning of the great tanneries at Chattanooga, offered by the *Druggman*, of that place, will be profitable to our readers:

"Of late the news from fires seems to be replete with 'spontaneous combustion' as the cause; especially is this true of the accounts of the fires of factories and large mills. We are inclined to the opinion that we saddle on combustion a much greater load than necessary. We are informed that a recent large fire and total destruction of one of the largest tanneries in the world, in fact perhaps the largest, that the origin of the fire is unknown, but supposed to be spontaneous combustion.

"It is a notorious fact in chemistry that refuse woody matter, such as sawdust, spent tanbark, rags, will generate a great amount of heat in their processes of fermentation or decomposition, to proceed with a distinction without a difference, and if any of the essential or fixed oils possessing a low combustion are brought in contact with and remain so for any length of time, there is not the least doubt but flames might ensue.

"This process of spontaneous combustion, the so much talked of laws governing it, are very little understood. All know to have fire we must have oxygen. Now, the oil has an affinity for oxygen, and the spongy nature of spent bark, sawdust, rags, and the like, affords an immense amount of surface for the contact with the air and with no avenue for the escape of generated gases; hence this chemical combination follows, and the operation is sufficiently rapid to generate heat enough to ignite the mass. Even whale oil has been known to take fire spontaneously when subjected to these influences and under these circumstances, and varnish, linseed oil, turpentine, as well as many other hydro-carbons used in the arts and manufactures, are almost sure to create trouble, resulting in disaster, when similarly treated.

"We have no means of knowing the origin of the fire in question; nevertheless there can be no doubt that many a destructive fire has an ultimate origin in the oil-soaked waste used in cleaning machinery and thrown carelessly among substances as indicated above. A little wise precaution will avert the penalty for a like ignorance or carelessness has been paid over and over again by oil, varnish, and seed users."

The time will soon come when we shall have reports of burning greenhouses, and wonders expressed why they burned. This paragraph will therefore be timely.

NEW OR RARE PLANTS.

THE CAYENNE CHERRY TREE: EUGENIA MICHELLI.—Mr. Gurney, Gardener to Mr. Henry Shaw, at the Missouri Botanic Gardens, kindly sends us fruit of this, which we have never seen before. It is of the form and appearance of a turban squash, though but an inch in diameter. The color is of a brilliant scarlet, and one might take it at first sight for one of the red pepper tribe, and which, perhaps, suggested its common name. Another native (Brazilian) name is Pitanga. It belongs to the myrtle family, and must be very ornamental in a large conservatory.

RARE PLANTS IN FLOWER AT THE MISSOURI BOTANIC GARDENS, AT ST. LOUIS.—During the past month two of the Quinine trees have been in bloom—Cinchona alba, and C. officinalis. Another rare economic plant, the Sweet Sop—Anona squamosa, has also been in flower.

The rare Fourcroya elegans, is also coming in flower. This is almost as rare an event as the blooming of the Century plant.

CROSSANDRA INFUNDIBULIFORMIS.—The tropical Acanthaceæ of which the Justicia and Libonia are familiar types, are among our most valuable winter blooming plants, and those who are familiar with their beauty and ease of culture, welcome any new addition to the list. This is another introduction of Mr. Wm. Bull, who tells us

that it is an erect-growing Acanthaceous plant, introduced from the East Indies, producing freely compact spikes of flowers of a rich reddish orange color, which, from their peculiarly distinct and pleasing hue, are very attractive. The leaves are stalked, ovate acuminate in form, and much narrowed to the base, to which the leafy margin extends.

Crossandra infundibuliformis.

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

A SURE REMEDY FOR DESTROYING MOLES.

BY R. TROTTER.

I have lived on a place that was almost overrun with moles, and have tried many remedies to destroy them, but failed until I procured one of Hale's patent mole traps. I got the trap in the fall of 1883, and up to the time when frost set in, I caught 21. I commenced again in the Spring of 1884; On the 14th of February I caught the first for this year, and up to this date of this year 15, making in all 36. There are some few yet, so the readers of this may judge how destructive to vegetables, flowers, and lawn they would have been. I consider it is only right to make results public, when an article is invented that is so useful. It was rightly named "a perfect mole trap." I have seen nothing for such a purpose invented as yet that can compete with it. I have no interest in the matter, or acquaintance with the inventor, but I consider that too much can not be said for the inventing of such a trap. I would further state that when set according to directions it never misses. My belief is, it is worth double its cost.

Souviers, near Wilmington, Del.

THE HORNET RASPBERRY.

BY NOVICE.

Why has this once favorite variety so nearly disappeared from cultivation and from the catalogues of our leading nurserymen?

It was introduced to American fruit-growers some twenty-five or more years ago—about the time the GARDENERS' MONTHLY was born—by Aubry & Souchet, French nurserymen, then established at Woodbury, N. J., a few miles from Philadelphia. At the same time they brought out the Pilate, Jouet, Imperiale, Souchettii, and two double-bearing varieties, the White and the Red Marvel of the Four Seasons. All of these and many others, French, English, and American, including Doctor Brinckle's choice seedlings, in all, some forty varieties, I have grown and tested, for several years, as they successively came before the public eye.

The result of my trials and experience of a quarter of a century is, that for family use at least, I give the first place to this variety, for the following qualities:

1st. Size; it is far the largest fruit I have ever grown or seen.

2d. Productiveness; under like conditions of soil and culture, it yields larger crops than any other sort.

3d. Length of season; as an illustration, I plucked the first ripe berry, from a score of vines, on the 20th of June, this year, within a week commenced to gather a supply for my family table, and at this present writing, August 5th, have just harvested the last of my crop.

4th. Quality; it is "good" to "very good," though not rating as "best." Its flavor is better than that of the Philadelphia, and other popular market sorts.

Next to the "Hornet," or rather as a companion to it, I should place Brinckle's Orange, of delicious flavor, attractive color and reasonably productive.

A saucer of the Hornet, sprinkled over with the Orange, is a most tempting dish for the supper table or the sick chamber.

I would complete the trio with one of the fall-bearing, that is to say, double-bearing kinds, whose autumn crop, borne on the young canes of this year, coming after all other berry fruits are gone, is always welcome, and often a pleasant surprise to one's guests. The best variety known to me is the Belle de Fontenay.

Raspberries should always be gathered, as they are in France, with their stems on. This is quickly done, holding a small, shallow box or basket in one hand, and in the other a pair of very sharp scissors, about four inches long, with which you snip the fruit off, without handling it. Thus gathered they carry better, keep longer, and can be eaten as strawberries commonly are abroad, dipped in powdered sugar or cream, or both, to the taste.

And now for the answer to my opening question; it is, either forgetfulness or neglect, on the part of the grower. All raspberries of foreign origin or parentage, are more or less tender in our climate, and need to be laid down on the approach

of winter, lightly covered with earth, and any litter or brush that may be handy, and so left till all danger of freezing is past. It is not so much the cold of winter, while the plant is at rest, as the late frost of spring, after the buds have started, that does the mischief.

The cost of protecting them is very little; a skillful man can cover many hundreds in a day, and do the work at a season when there is little else to do. It pays better to do it than not to do it.

A subscriber to the MONTHLY from its first appearance and an old time contributor, is your friend. *Philadelphia.*

PEACH ROOT APHIS.

BY CHARLES BLACK.

I notice the articles on this insect in Sept. No. of the MONTHLY, and am surpised that it should be considered new. I think very few observing Peach growers, especially nurserymen who grow young trees, would call it new,—it has committed such damage to young trees that all ought to remember it. I have for years past in favorable seasons seen more or less of it on the roots of young trees; they are brown or black, and cluster on the small roots of the trees, and wherever a cluster of them forms on the roots, they suck out the sap and life of each individual root that they may be on, and it will die, and others be alive that are free from the aphis. When in sufficient numbers, they kill the tree outright—they often infest the top of the tree also—both in the dormant and growing state. I have often seen them in such numbers on young trees, as to look as if the trees had been hurt badly by frost, or some such cause. Two years ago I visited a nurseryman, and in looking over his nursery, he called my attention to a lot of young Peach trees, saying that a previous cold storm had injured them badly. As soon as I saw the trees, I explained the cause, and upon examination we found millions of this aphis which had infested the roots the previous year, and in the Spring had come up on the tops, and in favorable weather had increased wonderfully. It is easy to destroy when on the top by tobacco water or dust, but hard to get at when on the roots. It infests the small fiber roots of larger trees also and gradually saps the vitality of the trees, which turn yellow, and eventually die; and the so called yellow is often caused by the ravages of this little underground robber.

It is more prevalent in cold backward seasons, and on sandy soils, and it is almost impossible to raise small seedling trees in the vicinity of old trees, as it prefers the young roots, and kills the young tree in a single season.

I am satisfied that it comes up from the roots to the top, and that it is propagated from the full grown aphis, and not a winged insect. This fact I have learned by experience in growing Peaches under glass. We put our trees in our house in Dec. without a sign of an aphis on the tops; in a few days I find full grown ones on the trees, and in a short time there are myriads of them. We kill them by fumigation, and only a few of the strongest survive, which under the greenhouse temperature multiply very rapidly. We never see the winged insect, so common among most aphides. If any one seeing this article is conversant with this class of insects and wishes to investigate the matter, I will try to send sample from the root, and also the tops. We can generally find them on the roots in the Autumn, say November, and at any time during the Winter in our orchard house.

Hightstown, N. J.

PEAR BLIGHT.

BY E. L. STURTEVANT.

Among the numerous experiments, relating to the diseases of plants, which have been performed at the Station, those on pear blight have excited the most interest. The first case of blight noticed in this vicinity was on a pear tree in a neighbor's yard, July 11, and on July 26, a small branch of quince in the Station garden was found blighted. These were both promptly destroyed. No other case of spontaneous occurrence of the disease has been observed within a mile or more of the Station. It has, however, appeared in considerable virulence among the pears and quinces in some localities in this region.

This seemed a most favorable opportunity of investigating the infectious nature of the disease, and accordingly on July 16, a pear orchard was visited and some of the diseased branches secured. Among these was one with viscid, yellowish drops exuding from the stem. With a needle a puncture was made about an inch from the extremity of several branches of a pear tree in the garden, and a very little of this excretion inserted. It was applied in the same manner to some terminal leaves, but a difficulty in manipulation rendered the result doubtful, for the excretion being very sticky and the leaf thin, it was not easy to remove it from the needle and insure its remaining in the wound. In from six to eight days, every branch

inoculated showed unmistakable signs of the blight. The bark turned brown and then blackish about the puncture, the color extending gradually through the stem, passing upwards toward the end of the branch much faster than downwards or around the branch. On the ninth day most of the wounds exuded some of the same viscid fluid which was used in the first place. They were all removed on the thirteenth day to prevent the disease securing any permanent hold on the tree. Most of the infected branches were blackened for a foot or more, and all the tender young leaves as well, all being thoroughly dead. It was noticeable that the full grown leaves were rarely affected, and mostly remained green up to the time of the removal of the branch. Only one of the inoculated leaves became infected, and this was a young, tender one. The disease spread to the stem, and worked the same as in the other cases.

At the same time, a portion of the same virus was applied to two young apple branches. Both showed the disease in eight days. It spread gradually until on the thirteenth day about two inches from the apex was quite dead and dry, and the branches were removed.

On July 24th an inch or so of diseased pear stem was sliced up in a watch glass half full of water, and after stirring about, the chips were all removed, which left the water slightly milky. This was used to inoculate with, by making a puncture with a pin and adding a small drop from the watch glass. It was applied to the branches of several kinds of fruit, but sufficient time has not elapsed at this writing to show results, except in the case of a very young branch of June berry (*Amelanchier Canadensis*) about six inches long, which showed unmistakable signs of blight on the sixth day. But the most remarkable results yet secured, were gotten by inoculating the fruit of Bartlett pear with this watery infusion. On the sixth day they were all blackened for some distance around the point of inoculation and exuding a copious flow of yellowish fluid which ran down the side and dropped on the ground. In fact, each was a great running sore. Upon cutting open the pears, they were found to be discolored almost throughout their interior. Inoculation at the same time on quince fruits, showed the disease in seven days, but without any exudation, and upon cutting them open, only about one-fourth the interior was affected.

We may make the following general statements which the experiments so far tried (some sixty in all) fully sustain. The disease known as pear blight is infectious, and may be transmitted from one tree to another by inoculation. It is not confined to the pear but may attack other pomaceous fruits, as the apple, quince, English hawthorne, and June berry. It is more active, and progresses most rapidly upon young and succulent portions of the tree.

Under the microscope any bit of diseased tissue shows inconceivable myriads of minute bacteria which fill the water of the slide in which it is mounted, like a cloud. It is, therefore, not necessary to depend on external appearances in order to determine the progress of the disease in a branch, for the microscope will decide with absolute certainty. There can not be a rational doubt that the bacteria are the cause of the disease.

Experiments are now being tried to determine the mode by which the disease is naturally propagated.

Director N Y. Exp. Station, Geneva, N. Y.

WESTERN FRUIT NOTES.

BY J. T. ALLEN.

When N. C. Meeker of the N. Y. *Tribune* established the Greely Colony on a high, barren, gravelly plain in Colorado, as much of an enthusiast as he was known to be, he could not have imagined that from that beginning there would grow up such a beautiful town. Surrounded by rich farms with groves of trees and orchards, and all in sight of the eternal snow. The writer had two hours to spend waiting for a train, and put in the time visiting the suburbs. Past the business portion of the town, mostly built of brick, solid modern stores and warehouses, the wide streets lead into the country, and it is difficult to tell where one leaves off and the other begins. The streets and walks are hard and smooth; on each side of the latter is a row of cottonwoods 10 to 12 inches in diameter, giving a delightful shade. At the curbstone a rapid stream of clear water which is turned into the yards as needed, flooding the green lawn, running between the rows of vegetables and around the flower beds, for every place is beautiful, rich and profuse with glorious bloom.

The residences all look fresh, and are cottages of modern style; an unpainted house is a rare exception. The objective point here was Mr. Parker's crab orchard of 600 trees, the oldest planted in 1875. These were bending to the ground with fruit, the varieties being Hyslap, Transcendent and Briar Sweet, the latter, larger than Transcendent,

originated in Wisconsin. Mr. Parker remarked that having demonstrated the success of crab growing he had sold five thousand trees in Greely and vicinity. The fruit finds a market in Denver, Cheyenne and the mountain towns; the net price realized last year being six cents per pound, 44 lbs. being the weight per bushel. Small fruits of all kinds have given a fine return. Mr. P. cultivates Wilson for his main strawberry crop. The Duncan for an early berry is the best when it escapes late frosts; thirty-five berries have been sufficient to fill a quart box. Plants set a month ago, under the influence of an abundant supply of water now cover a space of 6 to 8 inches in diameter. The red raspberry season is at its height, and growers are busy shipping, realizing twenty-five cents per box. Clark, Turner and Cuthbert are the approved varieties; all these have to be laid down and covered with earth during winter.

Complaint is made that apples winter kill, though the writer has seen fine specimens of Duchess, Ben Davis and Red Astrachan grown under the shadow of the mountains. The trouble is that the ground is too dry in winter. An abundant irrigation in the fall with heavy mulching would no doubt in my mind insure a good growth. Twig blight is unknown.

Since writing the above I have visited a few of the orchards in Utah, along the line of the Utah and Northern R. R. Apricots have given a fair crop; specimens, as large as hen eggs, not uncommon; early peaches (August 6th) just coming into market. These are clings, green fleshed, very rich and full of juice. Smock, Orange Stump, Heath Cling, etc., show half a crop of fine fruit, while the seedlings in most orchards are full. These furnish the staple dried fruit—Salt Lake peaches. Apples are still troubled with codling moth, but the crop of the standard sorts like Greening, White Winter Pearmain, Wine Sap, etc., is very heavy. Red June, Astrachan and Pennock are in market, retailing at three cents per pound. Pear trees are bending to the ground; Bartletts, Flemish Beauty and other standard sorts very fine. Plums are full, especially Green and Imperial Gage and Coe's Golden Drop. The effects produced in enlarging the size of fruit by irrigation would surprise an Eastern fruit grower. A small furrow runs within three feet of the rows and the water turned in for two or three hours once a week, costing but little labor, gives a large return. These Utah fruit growers are as well posted on new kinds, etc., as the men of New York. Onions are a profitable crop in the valleys of Utah. On one farm was a fine crop of Yellow Danvers where 800 bushels were gathered last year from three-fourths of an acre; price seventy cents. *Omaha, Neb.*

EDITORIAL NOTES.

IMMEDIATE EFFECT OF CROSSING ON FRUIT.—This subject has often been discussed in the GARDENERS' MONTHLY, the evidence favoring the belief that there is some influence of the male parent on the fruit, as well as on the progeny, after cross-fertilization. The subject has again come into prominence by the discussion on strawberries during the meeting of the American Pomological Society, and of which an abstract has just been published in the proceedings. If what is the general tenor of that discussion be true, it would not be worth any one's while to give an opinion of the merit of any new variety, for its character would depend on what kind grew along side of it. Now this may be true of a kind wholly pistillate, and which must have its pollen from some other kind. If it be true that in all cases the immediate fruit partook of the character of its two parents, there would be no escape from this conclusion, that there is no fixed character to a pistillate strawberry. But the facts on which the doctrine is founded are very few—by no means enough to warrant the general belief proposed. What we want is, more careful experiment, not more arguments on the few we have.

In the case of Hermaphrodites there is absolutely no chance of any such variation from their normal character. Bees go from flower to flower on a bed, and not from one bed to the other till they have all they want from it. They are therefore pollenized by their own variety, and the few cases of crossing from another kind will be lost in the great whole.

WHAT IS GOOD TREE PLANTING?—It is not uncommon to hear people say, "though we had the trees planted with every care and attention the trees died." The fact is that what people often call very good planting, is very bad planting. One of the best pieces of good sense in planting came from the lips of Mr. Fulcomer in an address before the Republic (Kansas) Horticultural Society. He is speaking of Apple trees: "In regard to planting, I practice different from most. My neighbor has trees bought same time and place as mine. They used twice the labor that I did in planting, and have not had as good success. I plow furrows as deep as I can, then cross plow at proper distance.

This leaves quite a hole where the furrows cross. I then set the tree, carefully working fine soil among the roots, and then after leveling up around the tree a little, I plow throwing the dirt to the trees, and leaving a dead furrow between the rows to drain off surface water. I use no spade—do not need one."

FRUIT GROWING IN OREGON.—Those who saw at the Centennial in Philadelphia, the magnificent fruit continually coming from Oregon, need not be told that that is an excellent fruit growing State. The opening of direct railroad communication with Oregon is doing much to encourage the development of these interests.

There is being organized on the Waldo Hills, near Salem, a company on the co-operative plan, for growing and canning fruits. Members will own and control land independently, and plant the kinds of fruits that each may desire.

A CURE FOR THE YELLOWS.—We think there has been no doubt in the minds of the greater portion of intelligent Horticulturists, who have followed what has appeared in our pages for some years past, that the disease in the Peach known as the "yellows," comes from the operations of a root parasite. It is well known to these students that the Peach is not the only tree which suffers from a similar disease. The Rhododendron, Norway Spruce, White Pine, and many other things, are equally affected, and all as it has been positively proved through the attacks of a fungus on the roots. That the fungus which causes the Peach "yellows" is the same as that which works injury in other cases has been positively proved by experiments recorded in our pages, where a spadeful of soil from near a diseased Peach tree, permeated by the fungus spawn, placed around a Norway Spruce, produces the disease in that tree also, and a microscopic examination of the two fungi shows them to be the same.

A species of fungus ferment seems to permeate the whole tree after these attacks, and buds taken with the ferment fungus in the tissue, and used for inoculating other stocks, will spread the disease. Even seed taken from such diseased trees carries a portion of the ferment with it, and the disease is spread in other directions. All these things are well known, and it is amusing in the light of all these facts to find still elaborate papers offered which after reading for an hour we find end with the assurance that nothing whatever is known of the Peach disease.

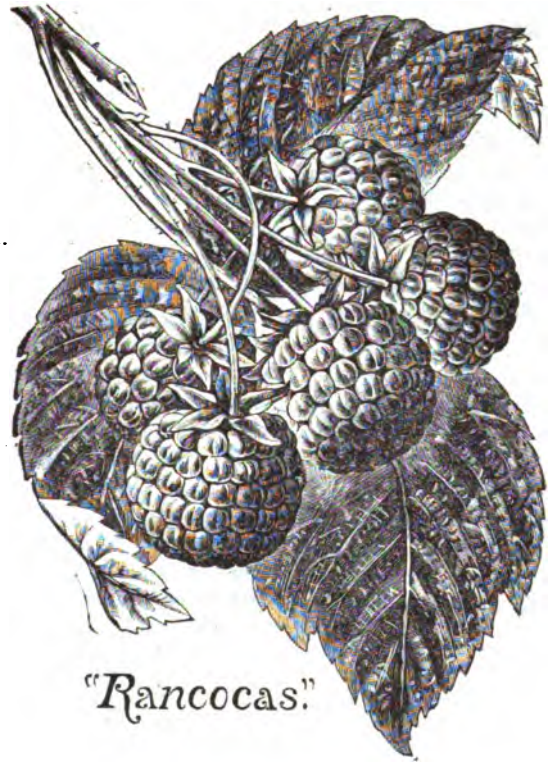
On a recent visit to Fairmount Park the writer found that Mr. Miller the consulting landscape gardener, had found a perfect cure in common sulphur. Every practical gardener knows that sulphur is always fatal to the lower organisms, though wholly innocuous as against the higher forms of life, and it required only the suggestion to use that on fungus below ground, which had been found so effectual on fungus above. The sulphur application was quite as effectual here, and Mr. Miller was quite enthusiastic as he pointed out his Rhododendrons and Pines, once so thoroughly diseased-stricken that most good gardeners would have at once committed them to the flames, now as green and healthy as the best. The only wonder is that no one has thought to try sulphur on the root fungus as a remedy for the "yellows" before. Probably it has come about because those who have suffered are chiefly among those who have no regard for those who are "fungus-mad," and who are quite sure that nothing is known regarding the disease. For our part we regard the successful experiments of Mr. Miller, as entitling him to a wide appreciation by his fellow cultivators.

A NEW CURCULIO REMEDY.—C. W. Westbrook, son of a well-known ante-bellum nurseryman of North Carolina, and, we believe, Professor of Agriculture and Horticulture in a North Carolina college, claims to have discovered a certain remedy against the Curculio and a company has been formed, which is pushing the sale very fast among southern fruit growers. It appears to be a powder, as it is sold in bags. Now it must be remembered that the Curculio goes into a Plum tree for the purpose of depositing its eggs in the plum, and not to eat, and if by "overcoming the Curculio" is meant destroying them, in the light of what experience we already have, the powder can scarcely do any good. If the discoverer were some mere adventurer without any knowledge of horticulture, as so many are, we should not give any notice to such an "invention," but the position of Mr. Westbrook seems to call for this so far favorable paragraph.

PRESERVING GRAPES IN WINTER.—A few years ago a discovery was made that hothouse grapes could be preserved all through winter by cutting the bunch with a piece of stem and putting the stem in a bottle of water. Since then large fruit houses have been built which have special arrangements for racks with bottles, and much money has been made by grape-growers who have gone extensively into the plan. Now a great move

forward has been made by Mons. Villiers, a French grape-grower, who finds that a potato will do as well as a bottle of water. He says: "Toward the end of October I cut the shoot with the cluster attached, sharpen the lower end to a point and stick it into a potato. I spread the bunches out on straw or dry hay, so that they shall not touch each other. Thus prepared, these shoots keep quite as well as if the shoots with the bunches attached were inserted in bottles filled with water."

APPLE BARRELS.—The English complain that the Apple barrels from New York and the Eastern States, measure only 2¾ bushels, while Western and Canadian ones with the "round hoops" measure 3 bushels. Then the English buyer is getting sick of finding the pretty apples on the outside, and the runty fellows stowed away in the middle. It seems scarcely credible that apple packers do not know better than this, but we suppose it must be so or we should not hear the complaints.



"Rancocas."

THE LUTIE GRAPE.—This is a seedling raised by L. C. Chisholm, near Nashville, Tenn. Vines two years old, from cuttings, have produced twenty-five pounds of choice fruit this season. In point of flavor it is equaled by none except the Delaware, and is three times its size, and much the same color. So says its introducer.

NEW AMERICAN RASPBERRIES. — A French magazine has an article under the above head, and among the novelties are recorded Brinkle's Orange, Bagley's Perpetual, Saunders, Doolittle's Black, Arnold's Hybrid, Brandywine, and the Gregg, which is rendered "Greygh."

MARLBORO RASPBERRY.—What appeared to have been a fine sample, reached us a mass of seething decay. It has been repeatedly stated in our columns that anything intended for the Editor should be sent to Germantown, Pa. The publication office is in Philadelphia. The Editor's office, is in Germantown.

A LARGE VIRGINIA VINEYARD.—A vineyard of 100 acres and an extensive wine-making establishment has been for many years in existence on the Blue Ridge, near Front Royal, Virginia. It is owned by Dr. F. A. Ashby, of Baltimore.

RANCOCAS RASPBERRY.—In our last we had a brief paragraph referring to a good point in regard to this new variety, in the facility offered by it for the rapid gathering of the fruit. We had an inquiry from a correspondent whether it was a larger berry than Cuthbert. The best answer to the inquiry will be a sketch of it, which we here give. We believe it is destined to be among the most popular of all the numerous candidates for public favor.

PROTECTING STRAWBERRIES FROM BIRDS.—In the gardens of Mr. Charles Spencer, near Germantown, Pa., the English sparrows and the robins played sad havoc with the strawberries. The gardener drew cords across the bed in various directions, and suspended pieces of tin at regular distances along the lines. This was found to effectually frighten the sparrows, but the robins seemed to find pleasure in these adornments, for they were even more devoted in their attention to the fruit after the task was done than before.

PEA NUTS.—2,010,000 bushels was the crop of the United States for 1883, of which Virginia furnished nearly half. They bring the raiser about $1.75 per bushel.

PROTECTING CHERRIES FROM BIRDS.—When traveling through France the writer noticed whole orchards of cherries which were protected against

birds by having fish nets drawn around them. Near large cities in our own country, where it is often difficult to keep cherries from robins and blackbirds, this may be found cheaper than any other mode of protection.

MEALY BUG.—A paint made of gas tar and clay, used with a brush over the stems of grape vines before the leaves push out, is found by hothouse grape-growers in England a sure remedy against mealy bug.

DOWNING PEACH.—This is the subject of a colored plate in the French magazine, *Revue Horticole*, which says it is there a variety among early Peaches which has all the leading merits of a first-class market fruit. Its small size is its only defect, but this is compensated in part by the beauty of the fruit, and its great productiveness. It is not stated that it is an American variety.

ASPARAGUS BEAN.—Once in a while some one calls our attention to a bean occasionally grown in gardens, bearing a slender round pod often two feet long, and looking more like a piece of rope than a bean as usually seen. This is known in France as the "Asparagus Bean," and is botanically Dolichos sesqui-pedalis.

WELCH'S PROLIFIC QUINCE.—This is from Connecticut and its full merits discovered in Vineland, New Jersey. It resembles no known variety, but whether a sport or a seedling is not known. It is regarded as one of the best of quinces.

THE MISSOURI PIPPIN APPLE.—There is some agreement among Kansas orchidists that this variety does not transplant as easily as some others. That is to say, it succumbs more readily to bad treatment.

HEAVY CROP OF JERUSALEM ARTICHOKES.—A correspondent of the *London Garden*, raised thirteen tons to the acre last year. It was in the North of England.

SCRAPS AND QUERIES.

A LARGE POTATO CROP.—In a letter to the Editor Mr. J. Paget, gardener to Senator Cameron, Harrisburg, Pa., says: "I want to tell you of what I call a good potato crop. On the 10th or 12th of April, 1884, I planted 1630 (sixteen hundred and thirty) square yards—about a third of an acre. On Wednesday, the 27th inst., I lifted them, and to my surprise there were 263 (two hundred and sixty-three) bushels. Mr. Cameron was amazed, also his friends who happened to see it. I would thank you to state if this is the largest yield per acre you know of. Variety, Blue Victor.

[So far as we know, this is the largest crop on record. If any one knows of its equal we shall be glad of the particulars.—Ed. G. M.]

OLIVES IN TEXAS.—"B. R." writes: "I am about moving to Texas, and am told the olive would be a profitable crop to raise there. Can I get trees in this country, or must I get them from abroad?"

[Southern nurserymen can supply them, but unless you can prevent cotton-seed oil from being labeled "olive oil," it will not be profitable.—Ed. G. M.]

THE GRAPE ROT.—"S. A.," St. Joseph, Mich., inquires: "Can any one give any information through the columns of the GARDENERS' MONTHLY in regard to the grape rot? Is there any remedy? Has it ever been known to leave a vineyard after it had been attacked, or does it come to stay, like the yellows in the peach? These are questions that all vineyardists in the West are very much interested in at the present time."

REED'S EARLY GOLDEN PEACH.—Mr. Charles Black, Hightstown, N. J., writes: "I send you by express, to-day, a box of what is called Reed's Early Golden Peach. My attention was called to it about one year ago, and not being satisfied by reports, I made a visit to the orchard, in which there are 100 trees of this variety, and I am unable to recognize it as any of our known varieties. Its value is great to the Delaware orchardist, as it comes in when very few yellow peaches are in market from that section. It is but very little later (probably a day or two) than Mountain Rose, and ahead of Foster. We have but one yellow peach, that I know of, that is as early, and that ripens before Mountain Rose, and known as Fleitas, or Yellow St. John, and grown largely in the Gulf States. It is not as large as this peach. The Reed's Early Golden has the appearance of Reeves' Favorite, but is fully a week ahead of that fine variety. I send these for your inspection, and if you know it, please report. The specimens sent were picked in Delaware on the 11th, and carried home in a valise."

[A very fine peach, and, for so large and early variety, very fair flavor. To our mind it is among the defects of all very early peaches that they are not so good to eat as some that come later. This one is a step in the right direction. They were 8 inches around and weighed 4½ ounces each.—Ed. G. M.]

FORESTRY.

EDITORIAL NOTES.

A FOREST PLANTING COMPANY.—A circular tells us that it is one of the most incomprehensible things "of this world," that a forestry company was not started long ago. We believe certainly that if a few intelligent men were to go in as Douglass & Sons have gone, and undertake the planting of forests in the judicious manner these enterprising foresters have exhibited, it would be a good thing. But we see nothing in the scheme developed in this circular to commend it. It is said to be a "company," of Waverly, N. Y., but only one name is affixed to the circular, and that one wholly unknown to us. The shares are "only one dollar," though it is shown how even a quarter may do good. An "opportunity like this is one of the rarest things in the world," and we think so too. When we say that the "company" purposes to plant enormously "in fever-stricken districts, the Eucalyptus," the profundity of the whole scheme is self-evident.

Is it really possible that the dollars will fly towards a scheme like this? We suppose they will, but not from those who read horticultural or agricultural papers.

CANADIAN FORESTRY.—Much surprise was manifested at the recent International Forestry Exhibition in Edinburg, that Canada made no response of any consequence. The idea was that Canada, of all parts of the world, would have a good exhibit. One reason probably was, no information of the International Exhibition was furnished to any influential quarter on this continent. A few Lords and Dukes in the old world can successfully "run a machine" by the inherent power of their titles alone. But it takes more than this to get people to work in America.

FRUIT OF THE NETTLE TREE.—The Encyclopædia Britannica tells us that the fruit of the Nettle tree is "largely eaten in the United States." If it had added, "by crows and other birds," it would have been correct. But we have no knowledge that it is eaten by human kind in the sense intended by the Encyclopædia. Does any reader? Of course it is sweet, as its name Sugar Berry suggests, and there is no harm in eating them if one want to—but we believe the want is by no means general.

WHITE OAK.—The immense value of the white oak, Quercus alba, created a double surprise at the International Forestry Exhibition—surprise that it was so good, and surprise that the fact was not more generally known. It would be a greater surprise, could these people know that in all the "forestry encouragements" of our timber planting laws, the special planting of white oak is no where encouraged. Very few people engaged in timber culture, know of the value of our genuine timber trees.

WHITE PINE IN WEST VIRGINIA.—It is said thousands of millions of merchantable white pine timber is standing in West Virginia, not worth the price of cutting for market. Some day when railroads get nearer it may be profitable.

TANNING MATERIAL IN CALIFORNIA.—Prof. Hilgard furnishes the following figures:

NAME.	Moisture lost in air-drying—per cent..	Moisture remaining in air-dried material—per cent.*....	Per cent. of tannin in		
			Fresh.....	Air-dried.....	Dried at 100° C..
1. Black Wattle (Acacia decurrens, var. mollisima). Bark..	36.23	9.47	26.4	41.4	48.6
2. Silver Wattle (Acacia decurrens, var. dealbata). Bark....	33.59	13.60	13.1	19.7	21.8
3. Golden Wattle (Acacia pycnantha). Bark	33.67	7.48	27.6	41 6	46.8
4. European tanners' sumac (Rhus coriaria). Leaves.....	.....	10.20	.....	16.6	18.7
5. California tall sumac (Rhus integrifolia). Leaves.....	.....	.....	.....	11.7	.....
6. "Canaigre" (root of Rumex hymenosepalus.....	71.70	11.40	9.6	34.2	38.4

* Loss when dried at 100° Fahr.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

PECULIAR VARIATIONS IN NATURE.

BY GEORGE C. BUTZ.

In your MONTHLY I have frequently read notices of peculiar growths and malformations, which, besides a passing interest, have a botanical value, and hence worthy of record.

I have observed a blossom of a seedling Begonia which had the form and position of the male flower, but, instead of stamens, had a circle of

seven pistils around a cluster of granular bodies, which bodies, on close examination, proved to be well-formed ovules, thus presenting an extruded ovary. There was no indication of a pod behind the petals.

A rarer phenomenon, however, is a root in my possession, half an inch thick, which grew in the form of a circle four inches in diameter, at the base of the stalk of a rank weed. There is no indication of the direction of growth or flow of nutrition. *New Castle, Pa.*

MICROSCOPIC PARASITES.

BY W. C. B.

The great number of microscopic growths known as parasitic fungi, many of which kill or seriously impede the growth of vegetable productions, demand earnest study by the gardener and farmer, as well as the scientist, for some of these forms of life are the greatest enemies of both plants and animals. Their small size and the fugitive character of many, are great difficulties in the way of knowing how to combat them.

The discoveries which have been made in this branch of natural history are due to the microscope, and those that will be made must come through a patient use of that instrument.

I have been surprised to find the microscope is so little used by gardeners generally. I have talked with several, lately, who have been in the business for years, who say they have never looked through one, and who do not even own a magnifying glass. Apart from a business or practical point of view, the study of this subject is very interesting and instructive. *West Philadelphia, Pa.*

[It is even so, as our correspondent says. A horticulturist without even a strong pocket lens always at hand, is not the one to progress very far in a knowledge of plants, and he misses one of the great pleasures which gardening is capable of affording —Ed. G. M.]

FOOD INSTINCTS OF ANIMALS.

BY A. VEITCH.

"Ecclesiasticus" is mistaken in saying, as he does in September MONTHLY, that "no animal in a state of nature will eat any natural substance to its own destruction or great injury," for we know that in regard to some creatures the reverse is true. For some years past I have been annoyed with snails in greenhouses, in some of which castor oil beans have been sown in the spring, and as soon as the seed-leaves appear they are greedily devoured by these creatures, the result of which has always been that many of them die and more of them suffer great harm. So true is this, that any one troubled with snails might mitigate the evil by planting beans in pots and distributing them among such plants as are liable to be attacked.

It is more than likely these facts are known to you, but they do not seem to be generally understood. *New Haven, Conn.*

EDITORIAL NOTES.

CALODENDRON CAPENSE.—There are few things more interesting in plant studies, than the effort to get at the reason for things. The idea that what

Calodendron capense.

exists is not the result of blind accident, but is deliberately and wisely planned for some purpose, is so fixed in the human mind, that even the most matter of fact person, no matter how much he may be impressed with the idea to believe nothing but that which can be proved, insensibly asks what is

the good of this, or the use of that, in everything he sees. Now in regard to this plant, it belongs to the family of Rutaceæ, all of which have peculiar oil glands, which can be readily seen on holding it up to the light, and which even give, very often, a dotted character to the petals, as we see in the illustration before us. The common garden Rue, from which the order takes its name Rutaceæ, will give an illustration of what we intend to convey. What are these bitter oily secretions for? Nobody knows yet, and it is this which we desire to point out to plant lovers as a good matter for special study. Some have thought that bitter oils are for the purpose of deterring animals from eating what may be to their detriment, and thus protect the plant, but Dr. Richardson, of New Orleans, recently pointed out to the writer, that while strychnine was bitter, and might be repellent, the poison of Hura crepitans, equally virulent, had no taste at all.

But we may get at the reason some day. We have found out why the sugar maple produces sugar—at least we are nearly sure we know—and we may at some time find the reason why Rutaceous and other plants have oil glands.

Independently of the interest to deeper students, the lovers of beautiful flowers will find pleasure enough in the Calodendron capense, which is a tall-growing greenhouse evergreen plant, with pubescent stems, and opposite pale green leaves, pubescent on both surfaces, lanceolate-acuminate, and narrowed to the base. The creamy white flowers, composed of linear oblong petals, are borne in immense terminal panicles. Is a native of South Eastern Africa, and was introduced to our notice by Mr. Wm. Bull, to whom lovers of beautiful plants are indebted for so many striking novelties.

Popular Science. — A prominent scientific magazine recently expressed its regret that scientific men should send valuable matter to the miserable agricultural and horticultural magazines, instead of to leading serials, such probably as itself. The horticulturist can retaliate by regreting that much that is published in leading scientific serials ever appears at all. Just before us is a paper in the *Popular Science Monthly* on changing the colors of flowers. We are told that black Dahlias can be produced by watering with iron salts, and that blue Hydrangeas can be had from pale red ones by manuring with iron ochre, or watering with a dilute alum solution. Now these miserable, ignorant and contemptible horticulturists know that this is all nonsense. Potted in precisely the same soil a Hydrangea will have plants all rose color and others all blue. Again, it is not uncommon to find separate branches on a plant with wholly blue flowers, though most of the others have pink. The horticulturist who has had the most experience in these matters says he knows no more how these changes occur than why red and blue tints are often in the same flowers of other plants.

The Shell Mounds of Florida.—The most remarkable feature of this marshy labyrinth which constitutes the northeastern corner of Florida, to which the sea asserts its superior title twice each day, the feature which may rank as one of the greatest wonders of Florida, is the enormous accumulation of oyster shells left by the Indians. These are found in banks on the islands and forming islands of themselves, the largest of which covers an area of about thirteen acres. The bivalve is found now in abundance in the larger creeks, and probably in former ages the channels through the marshes were better suited to its growth. It is probable that, for thousands of years, the neighboring Indians were accustomed to come here for the fish and oysters which abounded in these waters. We may picture to ourselves the manner in which these islands were formed. At first a canoe load of oysters was brought to some elevated spot, and there the empty and unopened shells were left. More loads were brought, and, scarcely diminished in bulk, were added to the pile, which gradually grew into an island, to which the Indians resorted in increasing numbers, ten, a hundred, or a thousand of them making it a place of encampment, at first temporary, afterwards, perhaps, permanent. Thus the island grew, century after century, till it became a vast pile, which remains a monument to an extinct race, of which we know less than of the race that built the pyramids. Like the pyramids of Central America they are relics of unknown races, whose energies were strangely directed and whose antiquity defies calculation.

Strange as it may seem, the shell islands have not, as yet, become popular resorts for the scientific and sentimental tourists. Few know of their existence and still fewer understand their real nature. Fishermen occasionally resort to them and much time and labor has been wasted in digging for treasure which some think was buried on them by the pirates. Innumerable pits and holes of all shapes are met with on the larger islands, but the only man who is known to have dug with profit is Walter W. Stowe. This energetic young man conceived the idea that money was hidden in the

shells themselves. Acting on this inspiration, this modern alchemist bought three of the islands, erected buildings, machinery and a kiln on one of them, and proceeded to burn and grind these relics of antiquity. Hence the origin of "Stowe's Oyster Shell Lime," an article which has become widely and favorably known as a fertilizer and building material. It was a bold and original idea, a precarious enterprise which seems to have been a success. For thus utilizing one of Florida's natural resources Mr. Stowe deserves public commendation and encouragement. It must be admitted, however, that this gentleman manifests very little regard for the antique, the romantic and æsthetic. He is now seeking to obtain a partner who will reside on the islands and have a common interest in the further development of the business. Seeing what one man has done, it may be expected that two will speedily grind up all of the Sisters (as these islands are called) and scatter their dust broadcast over the land. And then probably they will discover some other equally bold enterprise. Perhaps they will buy the pyramid of Cheops and convert it into building stone.—*A. H. Curtiss, in Florida Dispatch.*

[In Alaska the writer found in the Indian huts immense quantities of dried clams. The mollusks were attached in pairs to straight twigs, "herring bone fashion," and dried over fires. So dried, they were hung around wherever room can be found for them. There were large clam shell heaps in some places. Is it possible that these ancient heaps were formed in the same way? That they were mere drying grounds for the oysters caught? So far as we know the idea has not been suggested.—Ed. G. M.]

THE LOCO WEED IN TEXAS.—In many parts of the world when some epidemic or some other demic runs through a herd of cattle, it is the fashion to try to put the trouble on some plant which the cattle are supposed to have last eaten, and thus many an innocent plant gets a bad name. A sort of Astragalus, a legume, is accused in Texas of being a "loco," another kind has such a reputation; in New Mexico and California some other species bears the brunt. Possibly they may be poisonous, possibly not. Possibly there may be nothing in the following, but it is well to keep up with the knowledge of what people say about things. This is from the *Texas Panhandle:*

"One of the many satisfactory features in the ranges at present is the dying of the uncalled for (mildly speaking) loco weed. It is held by some that this mysterious plant dies out generally over the range every seven years. However that may be, reports from nearly all parts say that it is dying out now, and that places where it was thick a short time since are virtually free from it. It is doing this without any apparent cause, alongside of growing winter grasses and other vegetation that is in a flourishing condition. Where the sudden and ridiculous loco flourishes one year, there may be none the next, and vice versa. It springs up and flourishes in a locality, or dies out seemingly without regard to causes or conditions."

PRIMULA OBCONICA.—To Primrose growers, one of the most interesting plants now in blossom in the College Gardens, Dublin, is the new Primula obconica, a Chinese species from the Tchang Valley. The flower, which is almost white, is rather like that of P. Munroi, but in habit the plant is more like P. mollis, the inflorescence being verticillate, and the corolla having in most blossoms an oblique limb. The calyx is the most remarkable part of the flower, being very short and wide, so that the corolla tube stands in it as in a large cup. The foliage somewhat resembles that of P. mollis or P. sinensis in shape; but is of a thick stiff texture and slightly glabrous; and the surface of the leaf is very uneven, more so than that of any Primula I know. A batch of seedling plants have, as Mr. Burbidge pointed out, a rather dangerous likeness, at first sight, to little plants of Coltsfoot. He also informs me that although this P. obconica (= P.poculiformis) is a true whorl-flowered species, yet its seeds germinate very quickly if sown as soon as they ripen. The same is true of P. japonica, but if the seeds be kept in a dry state for some time most of the species are slow and uncertain in germination. One peculiarity about P. obconica is that if the seed capsules are removed the plant continues to flower all through the year. The plant in the College Gardens came from Messrs. Veitch in November of last year, and has been in flower ever since, having also ripened seeds from which a good crop of young plants has been raised.—*C. M. Owen, in Gardeners' Chronicle.*

VARIATIONS IN NATURE.—An address on "Variations in Nature," read by Mr. Meehan before the American Association for the Advancement of Science, Montreal, has been published, and contains many interesting facts in reference to this subject. After briefly discussing Darwin's views he gives the following example of variation:—"Near my home in south-eastern Pennsylvania we find the common Virginia Creeper, Ampelopsis quinquefolia, with five leaflets. In Texas, Mr. Buckley finds it with seven, in northern Pennsylvania it is found sometimes with three. Along the

Canadian line it is mostly with five, but sometimes with seven. In south-eastern Pennsylvania the leaflets are usually broadly ovate, slightly serrate, dark green, and the flowers and fruit are borne on rather stout pedicels. In Colorado the leaflets are rather wedge-shaped, deeply laciniate, of a somewhat glaucous green, and the pedicels slender. In south-eastern Pennsylvania the secondary veins are delicate, curved, and diverging from each other as they extend towards the edge of the leaflet; along the shores of Lakes Erie and Ontario, especially on Goat Island, near Niagara, the veins are very prominent, straight, almost parallel, and give the appearance at first sight of Horse-Chestnut leaves. We do not regard these outlying forms as species, we do not even consider them as varieties. But why? Merely because we find in what I will call the central form a tendency to all the characters referred to. If this central one were to disappear, I think botanists would have no difficulty in regarding the outlying forms as well-marked varieties, if not good species."—*London Journal of Horticulture.*

WILD GRAPES IN NOVA SCOTIA.—It is singular that with the general diffusion of the species of grape over the American continent, none have been found wild in Nova Scotia, except in a probably introduced location.

THE TUCKAHOE, OR INDIAN BREAD.—Prof. J. Howard Gore contributes to the recently issued Smithsonian Report, an exhaustive paper on the "Tuckahoe," or Indian Bread. This is a large "tuber," growing wholly underground, of a fungous character, supposed to be partly parasitical or feeding on dead roots, and to have beeen a very valuable food with the Indians. Specimens of it as large as cocoa-nuts are often found. Different writers have referred to it as starchy and nourishing; but as no starch has ever been found in a mushroom, the "Tuckahoe" has been invested with a special interest. Mr. Gore now unravels the mystery by showing that Tuckahoe was not applied by the Indians specially to this plant, but is a term in the Delaware and Cree dialects, applied to all esculent bulbous roots used by the Indians as food. In the writings of most of the early historians it is evident that the starchy roots of various Aroid plants were what they referred to as "Tuckahoe." In Smith's "History of Virginia," it is said that "the chief root they have for food is the Tockawhoughe. It grows as does a flag, in the marshes." Clayton, in his "Flora of Virginia," seems to have been the first of our authors to refer to the fungus under this name. He says: "Lycoperdon solidum, a very large tuber of the ground; outside rough, white within. The Indians use it for making bread, commonly called Tuckahoe." Of late years the name has been exclusively applied to the fungus, which Fries calls Pachyma cocos. Torrey, in 1819, made an analysis and found no gluten, but that it was composed almost wholly of a peculiar vegetable principle, which he calls Sclerotin. A similar tuber is found in China, and is known as Fuh-ling and by other names. It has been found in all the seaboard States from New York to Florida, in soil free from prevalent moisture, and in fields that have not been farmed for several years, especially if timber has grown on the land within half a century, although the spores seem most likely to germinate at first on living roots of trees. These "spores have the power of converting the woody fiber of the root into their own substance, which forms underneath the bark." "It gradually grows in this manner, appropriating the bark of the root for its own covering until it becomes too large, during which process it forms a bark of its own." A very useful part of Professor Gore's paper is a catalogue of all papers on the Tuckahoe that have come under his observation—forty-one in all.—*Independent.*

DO TREE TRUNKS ELONGATE?—Every once in a while there seems an eruption of some silly debate which goes on for months and months, writers taking hours on hours to write their opinions, and readers days and days to study them, when five minutes of a personal examination would settle the whole question. Just now the old topic, Do tree trunks elongate? is again the subject of contention, though it was thought to be respectably buried over a dozen years ago. "Well, do they?" Go to the nearest Norway Spruce or Pine tree on your lawn, and you will find the lower branches or their scars a few inches from the ground, just where they were when you or your grandfather set out the tree any number of years ago.

DURATION OF LIFE IN A HONEY BEE.—The bee's life is a short though an active one. We talk of people working as if they had but a few moments to live, and this may be the reason why the poor bee works so hard. About six weeks in the Summer time is believed to be the full term of life for an English honey bee.

SUGAR FROM THE OREGON MAPLE.—The *Vindicator*, an Oregon paper, says that a Mr. William Smith, in Nehalem Valley, twenty-eight miles from

Forest Grove, makes sugar exactly like the Vermont article, from trees in that vicinity, and that it is yielded so freely that he expects to make 1500 pounds from 500 trees, this season. The kind of maple is not stated, but it must be either Acer macrophyllum or Acer Negundo, the box Elder. It is not known, we believe, that sugar can be had from the former, though the latter was in use for sugar by the Western Indians.

THE HYDRANGEA AS A TEA PLANT.—The *Gardeners' Chronicle* says that a Japanese shrub, Hydrangea Thunbergia of Siebold, and called by the Japanese Amatsji, or "Tea of Heaven," is found on the mountains of Aiva and Souaki, where the leaves, which are oblong and serrate, are, when dried, used by the natives as tea, under the name referred to above, and by the Chinese as "Di-sido-san." It is sometimes known as "Sweet Tea," by the Japanese, who assert that there is a variety of the same plant with bitter leaves, which they call "Kakassoo."

POOR MAN'S PLASTER.—In his Botanical rambles in Florida, Mr. A. H. Curtis says: "Leaving this inhospitable isle, we soon reach another called 'Possum Island which is similar to the first one except in vegetation. The characteristic plants of this island are not boldly repellant as on the other, but of a deceptive, treacherous nature, armed with worse but partially concealed weapons. Creeping among the grass is the crowfoot cactus (Opuntia Pes-Corvi), whose spines adhere to the fingers so tenaciously by their barbed points that joints of the cactus are pulled off with them. It is a plant not to be handled with impunity, much less to be sat upon. Our hands are stung with nettles and with the minute spines of the Opuntia vulgaris. Our clothes bristle with the seeds of the Spanish needle (Bidens bipinnata) and are spotted with the adhesive leaves of the "Poor Man's Plaster" (Mentzelia Floridana). This plant is as handsome as a primrose, and as incapable of giving pain, yet one learns to dread it more than any other. It is a weak, diffusely branching plant with bright yellow flowers and handsome foliage, which, with age, assumes various shades of brown and yellow. A weary, unwary tourist is tempted to recline upon the soft mats spread invitingly by the Mentzelia, but woe to him if he yields to the temptation, for on rising he will find himself as fantastically decorated as a harlequin, with patches of yellow, orange, russet and various shades of green. The leaves stick like adhesive plasters and cannot be removed by pulling or scraping. The whole plant is covered with minute, white, barbed, siliceous hairs, and as the leaves are very tender it is almost impossible to remove them from a woven fabric.

SCRAPS AND QUERIES.

EVAPORATION FROM TREES IN WINTER TIME.—"R. V. P.," Cincinnati, O.: The juices of a tree are drying out through the bark, and especially through the most recent bark, all through the winter. The more severe the winter the greater the draft. All this loss has to be made good by the roots. Though encased in frost their work of absorbing moisture must go on and does go on. It must be worse for them to have to thaw out their drink than to have it without thawing. Hence you will find it a great help to a tree to mulch or otherwise prevent the frost from entering deeply.

YUCCA FOR TANNING.—R. Jacobsen, Chicago, Ill., writes: "I take the liberty to ask if you think the rind or bark of the Yucca cactus has been or could be utilized as a tanning agent? A friend from S. California has asked me this question—as I am a sole-leather tanner in this city—but I cannot throw any light on the subject."

[Yucca makes good soap and good paper, but we doubt if it has any thing of value to the tanner. Does any reader know?—Ed. G. M.]

THE MAY BEETLE.—"C. W. T.," Hulmeville, Bucks co., Pa., says: "What has become of the May beetle, June bug of some? For the last thirty years or more they have existed in myriads in my neighborhood, but this year they have almost totally disappeared. I do not think I have seen a dozen specimens since April 1st, either as grubs, when turning up the soil, or as mature insects. I notice that trees which in former years have been stripped of all their foliage do not appear this season to have lost a leaf. To what is this lucky exemption owing? Can it be the late frosts? Or has their enemy found them at last? Surely this is not a mere local experience. What other reports have you?"

[They were not observed here this season.—Ed. G. M.]

EFFECT OF THE STOCK ON APPLE GRAFT.—L. H. Bailey, Jr., Cambridge, Mass., inquires: "Have any readers of the MONTHLY had experience to prove that the keeping qualities of winter apples are 'essened by being top-grafted on fall stock?

Have any experimented with apples or pears grafted on the wild crab or on species of Cratægus?

[We believe Mr. Douglas, of Waukegan, once experimented with the Hawthorn as a stock for the apple or the pear, and we should be glad to have his experience or that of other correspondents.

As a matter of scientific interest it may be as well to offer a word of caution to guard against a wrong conclusion. If a pear be grafted on the quince the quality of the fruit is affected, not because the stock is a quince, but because it is a weak growing stock. In other words, whatever affects nutrition affects quality. Now among varieties of apples there are some which are vigorous growers, and others which grow weak, and there must be this difference among the stocks on which apples are grafted, as well as among the grafted kinds themselves. To our mind, therefore, the result hinted at would depend as much on the roots of the tree bearing the fall stock proposed for the experiment. Still the knowledge would be useful so far as it goes.—Ed. G. M.]

LITERATURE. TRAVELS AND PERSONAL NOTES.

EDITORIAL NOTES.

FAIRMOUNT PARK, PHILADELPHIA.—A recent visit to this beautiful public resort was among the pleasures of the past month. As our readers mostly know, it comprises nearly 3000 acres, including the part of the Schuylkill river which flows through the grounds. The large extent was however a provision for the future, and except as far as forming some drives through pretty natural scenery, but a comparatively small part has been developed to the extent garden art is capable of accomplishing. The more elaborate gardenesque portion is confined to a few acres around the grand conservatory and a portion of the east side; other portions have groups of the more ornamental shrubs in groups or scattered over the natural surface; the rest is occupied by acres of wild carrots, rank herbage, or the natural sod. The Park is managed by a commission established by the legislature, the members of which are elected for life by the Judges of the courts, with the addition of the Mayor, Presidents of Select and Common Councils, and the heads of some of the city departments whoever they may be for the time being. Just why these were added to the commission is not apparent; these heads have just as much as they can attend to in their several departments. Nor is the system of appointment by the Judges of courts to be commended. These Judges also have all they can properly attend to; and, as a general thing, have no knowledge whatever of the needs of an affair of this character. Nor is a life tenure wise, though it is desirable to continue to re-elect those who show, by experience, peculiar fitness for the position. We make these remarks for the benefit of those cities which may be in the humor to establish public parks. A commission of five, elected by the people, each commissioner to serve five years, would be the best arrangement. There is more chance of the best people being elected by this method than any other—though by the best methods any but the best selections are often made. For all its cumbersome commission, and unfortunate tenures and methods of creation, Fairmount Park has been fortunate in having some very superior men connected with its management. Its leading paid officers are, a chief engineer, a consulting landscape gardener and a captain of the guard. Two hundred and twenty thousand dollars were appropriated for its maintenance and improvement last year. It is proper, however, to say that this large sum does not represent legitimate garden matters; no less than one-third of the whole being singularly enough applied to police purposes. Another heavy draft on the enormous sums devoted to Park purposes, comes from the effects of the Centennial Exhibition. Much done then was for temporary purposes, and useless for truly Park uses, and this has either to be removed or repaired, or maintained at great expense; and thus the money spent does not show to good advantage. The grand conservatory, for instance, was not built for the permanent growth

of plants, but as an imposing structure for the temporary occasion, and the chief use it can be put to now is to shelter a few huge palms, aroids and bamboos, which, interesting enough in themselves, are not worth the enormous first cost of the structure and the heavy sum which the repair of so much "gingerbread" must increasingly entail from year to year. The side wings, however, are very well adapted to their purposes, and these now contain fine collections of ferns and rare tropical plants. For the actual work of legitimate horticulture, Philadelphia gets probably more for her money in Fairmount Park than many other cities can boast of in connection with their public grounds.

The greatest attractions at the time of this visit were the Mosaic flower beds in the Sunk Garden, the Floral Jungle in the front of the Conservatory, the tanks for aquatic plants, and the very full collections of coniferous and other trees. The Mosaic, or carpet bedding, is particularly beautiful, though suffering, in the eyes of persons of taste, from the fact that it is a sort of cart before the horse. Good taste demands that ornamentation should be subservient to something to be ornamented. Here a long canal was made expressly to show off the flower beds, and it is so apparent that the canal has not and never had any other use, that it detracts very much from the real beauty such attempts at ornamental gardening usually present. The Jungle is a very large bed made up of sub-tropical and other plants, with a gradual transition to the strictly artificial features of modern gardening. It is a style of garden beauty becoming yearly more popular. Hardy aquatics have been very popular since the efforts of Mr. E. D. Sturtevant to bring them into notice a few years ago. The Victoria, the Lotos, and numberless forms of the regular water lilies, grow and bloom from day to day to the astonishment of the denizens of a large city. A popular public garden has to be very much like a popular theatre, and "new pieces" have to be continually brought out to please its patrons. Mr. Miller, the landscape gardener, made a good hit, a few years ago, by his great Chrysanthemum show; this season the water plants seem to be the leading talk of the town. It requires considerable genius to look ahead for, plan out, and successfully prosecute these novel features, especially in public grounds where so many changes are liable to occur between inception and success.

To Make Attar of Roses.—Fill a large glazed earthen jar with rose leaves, carefully separated from the cups; pour upon them spring water just sufficient to cover them, and set the jar, with its contents, in the sun for two or three days, taking it under cover at night; at the end of the third or fourth day small particles of yellow oil will be seen floating on the surface of the water, and which, in the course of a week, will have increased to a thin scum. This scum is the attar of roses. Take it up with a little cotton tied to the end of a stick, and squeeze it into a vial.

The Botanical Club of The American Association for the Advancement of Science.—The extraordinary number of botanists that were held together in connection with the American Association's meeting in Philadelphia, was a matter of great surprise to the members of the British Association who took part in the proceedings; one, especially, informed the writer of this paragraph that he had never seen or heard of any such gathering in connection with their Association, and he took it as a sign that botany is much more appreciated as a popular study in America than it is in the Old World. No less than sixty were found to join in the excursion to the pine barrens. Notwithstanding the strong attractions of the excursions to the fashionable watering places of Long Branch, Cape May and Atlantic City, and the great excursion to the coal regions, which were all to start at the same time, and a dog-day sun of 90° raged overhead, none of the party regretted that they had given up all for this excursion. Much of the success was no doubt due to the popular enthusiasm for botany, as noted by our British friend, but very considerable is due to the exertions of the leading members of the Botanical Club of the Botanical Section of the Academy and of the Philadelphia Academy; and we are sure we may name especially, in this connection, Professors Arthur, Beal and Bessey, of the former, and Messrs. Redfield and Martindale, of the latter, as particularly deserving of the thanks of all who participated.

The Grave of Dr. Engelmann.—The remains of this distinguished botanist repose in Bellefontaine Cemetery, North St. Louis.

Meissonier as a Horticultural Joker.—The following story in connection with the painter Meissonier, reminds one of the joke of Congressman Walsh, in planting a real rat for a specimen of the rat-tail Cactus, now many years ago. In his employ, not many years back, he retained a middle-aged gardener, who was a remarkable botanist, but also an incorrigible wag. He piqued

himself on his knowledge of seeds, and Meissonier was always trying and always failing to puzzle him. "I have got him now!" said Meissonier to some friends at a dinner party; and he showed them a package of the roe of dried herrings. He sent for the gardener. All the guests smiled. The gardener arrived. "Do you know these seeds?" Meissonier asked. The gardener examined them with great attention. "Oh! yes!" said he; at last. "That is the seed of the polypus fluximus, a very rare tropical plant." "How long will it take the seed to come up?" "Fifteen days," said the gardener. At the end of the fifteen days the guests were once more at table. After dinner Jean was announced. "M. Meissonier," he said, "the plants are above the ground." Fully anticipating the success of his joke, but a little bewildered, the great painter and his guests went into the garden to behold the botanical wonder. The gardener lifted up a glass bell, under which was a little bed, carefully made, and in which three rows of red herrings were sticking up their heads. The laugh was against Meissonier. He discharged the gardener, but took him back the next day.

THE NORTHERN STATES OF NORTH AMERICA.—The Rev. C. Wolley Dod, in an article on the Hypericum in the *Gardeners' Chronicle*, tells that Hypericum pyrimidatum grows in the Northern States of North America. Just where these are located is not taught in our geographies.

THE GRAVE OF FREDERICK PURSH.—It is not generally known that Pursh, the author of the first work on systematic botany which proposed to take in the whole Flora of the American continent, died at Montreal, and that his remains are in the cemetery there. Scientific men of that section have erected a neat monument over his grave.

JOHN WILLIAMSON.—We find by a note in the *Botanical Gazette*, that the author of the very interesting book, "*The Ferns of Kentucky*," died recently in the mountains of West Virginia, where he had gone to endeavor to repair his shattered health. He was found by the physician called to attend him, lying on a pallet by a bank of ferns along the riverside, and died on removal to his hotel. He was born in Scotland in 1838, and came to this country in 1866, settling in Louisville, where he became one of the most noted artists in metals, reaching, in fact, from a comparatively humble beginning, a high degree of fame. We believe his only relative he had in this country is his mother, who still survives him.

LEMUEL CLAPP.—We did not know, until the receipt of the Transactions of the Massachusetts Horticultural Society, of the death of this well-known horticulturist, of Dorchester, Mass, which occurred on the 15th of June, last, in the sixty-eighth year of his age. The popular Clapp's Favorite Pear was of his origination.

IGNATIUS SARGENT.—Among the deaths for August we are sorry to have to chronicle that of Mr. Ignatius Sargent, which occurred on the 18th of that month, he being then in his 85th year. He belonged to a family, of which Mr. H. Winthrop Sargent is a well remembered representative, that did honor to the more refined interest in gardening in our country, and which gives to humanity some of the greatest pleasures of life. We have of late had too few of this class among us, and we can but hardly spare the illustrious few who are passing away. The fifty years he spent in beautifying his grounds at Brookline must have been very happy ones to him, and the numerous friends who have been aided and assisted by his example and his results, will testify to the great success with which he prosecuted his beloved occupation. He took up a piece of an old grazing farm, celebrated for nothing but good hunting ground for woodcock, and made of it a perfect horticultural paradise. It is so common to have the delightful work of our great lovers of Horticulture pass away with their decease, that it is a great pleasure to note in this connection that Prof. C. S. Sargent is the son of our friend, an inheritor of his tastes as is well known, and who will preserve what has been so well begun. We give an extract from the Cape Ann *Advertiser*, a fuller account of Mr. Sargent's business career, which we are sure all our readers will appreciate.

IN MEMORIAM.

Mr. Ignatius Sargent, an old-time Boston merchant, died very suddenly at his home in Brookline on Monday, in the eighty-fifth year of his age. When found he was sitting in his chair, with a book resting upon his knee, his head inclined forward, and it is supposed that he passed away while asleep. Mr. Sargent was born in this city in 1800, and belonged to a well-known family, being a descendant of William Sargent, 2d, of Bristol, Eng., who settled here about 1678, and whose descendants have included many men of national repute in commercial, military, political and literary circles. Although born in this city, Mr. Sargent did not long remain here, as his father, Major Ignatius Sargent, a successful Gloucester merchant, moved to Boston during the son's infancy, and died there in 1821. The latter's father, Daniel Sargent, was also engaged in commercial pursuits here until the commencement of the Revolutionary war, when he removed to Newburyport, and afterwards to Boston, where he died in 1806; be-

sides Ignatius he had sons Daniel, merchant and State Treasurer; Henry, a painter of celebrity, and Lucius Manlius, the author. Daniel Sargent's father, Col. Epes Sargent, son of the early settler above mentioned, was a prominent citizen of Gloucester and Salem.

Mr. Ignatius Sargent retired from a successful mercantile career in 1840, and four years later purchased a large farm in Brookline, where his closing years were passed in dignified retirement. He was a great lover of Horticulture and choice stock, and his estate was one of the most beautiful in the suburbs of Boston. He was a man of shrewd and clear judgment, and of strict integrity, and was a recognized authority in financial circles. He was for nearly half a century a director and for 30 years president of the Globe Bank. He was also a director of the Massachusetts Hospital Life Insurance Company, and for a time its manager; a director of the Western, the Boston & Albany railroad and the Connecticut River railroad. He was one of the moving spirits in the building of the Western road and was closely associated with the late Chester W. Chapin. He was also president and director of several manufacturing corporations. He leaves one son, Professor Charles S. Sargent, and one daughter, Mrs. James M. Codman, and a grandson by a deceased daughter. Among the pictures which adorn his handsome residence at Brookline is a half length life size portrait by Copley, of Judith, relict of the Rev. John Murray, the apostle of Universalism, who was his father's cousin.

AUGUSTUS FAUL.—Landscape gardening in America, cannot afford to lose many of its devotees. They are all too few. Those we have are overburdened, and when we look around for some one to aid in their excellent labors, all of us who are liable to be consulted know how hard it is to find one who can do the work. In this spirit we sympathize with the city of Baltimore in the loss it has sustained by the death of the excellent man, whose name heads this paragraph. His death occurred on the 26th of August, in his 62d year. He was a native of Germany, but had been for many years at the head of the landscape engineering of the city parks.

MR. E. A. CARRIERE.—The well-known editor of the *Revue Horticole*, and Chief of the Flortcultural Department of the Museum at Paris, has been decorated with the insignia of the Legion of Honor for his horticultural services.

FALLACIES IN PROGRESS AND POVERTY.—By William Hanson. New York: Fowler & Wells Co.—This is a review of McLeod's Economies, and while it shows how illogical are many of the principles presented by that writer, it seems to us that the same destruction must follow with many of his own. For our part, works of this character have no great charm; so very much of what is right or wrong in human action depends on contingencies, that what is right or wrong in human action has to be described by results. As a facetious writer says, whether the efforts of a people in a national struggle is finally decided to be a glorious revolution, or an infamous rebellion, depends on the success of the effort.

Some of the axioms here presented, seem especially dependent on contingencies or circumstances. For instance, the author says, "Whatever two people mutually agree to on a matter of exchange, is just." But it seems to us that if ninety-nine people "mutually agree" to give a dollar for a pear tree, and the nurseryman gets some poor fellow to "mutually agree" to give him five dollars for the same article, the transaction is not just. The simple reflection on this illustration shows that some other element besides "mutual agreement," must enter into a bargain to render it "just." Again, what are we to think of "competition is a great evil." Nothing will stop this evil but "education, and the repeal of all laws which sustain injustice." We must first agree as to what is "education," and what is "injustice." According to this author, "monopolies" constitute injustice, and all "laws sustaining them should be repealed." Now the writer of this book can very well afford, perhaps, to argue this way, when railroad companies are in his mind—but if he should be the fortunate inventor of a sewing machine, or a telephone—or say of some new fruit or flower—ten chances to one but he would be on the lookout for some patent, by which he could enjoy a "monopoly" of the good thing for as many years as the law would let him.

To many minds however, problems such as are here discussed are very enjoyable, and to all such the work will be very welcome.

BIBLIOGRAPHY OF THE LILY.—Mr. J. H. Krelage, of Haarlem, has published a full catalogue of all the works treating wholly or partially of the Lily, that he has in his library. It commences with J. Cuba in 1533, and ends at the three hundred and sixty-fourth treatise in 1884, by Thomas Moore, on the varieties of Lilium Washingtonianum. It is a very valuable catalogue.

DRUGS AND MEDICINES OF NORTH AMERICA.—The July number of this periodical has an exhaustive paper on the Hepatica, showing its botanical history and therapeutic virtues. These last it shows to be absolutely none, and yet the demand for it has been and still continues to be so

enormous, that the wild plant is almost eradicated in some localities. The true "liverwort" Marchantia polymorpha, is a good remedy in liver complaints, and it is believed this plant is in demand because it happens to have the same common name. But the testimonials regarding "wonderful cures" are as numerous as if the real plant was used.

SCRAPS AND QUERIES.

FAVORS TO CORRESPONDENTS.—A New York correspondent writes: "I sent you a paper, referring to one already published, and asked as a personal favor that it appear in the following number. No notice was taken of my request. Is that the way to treat those who spend time and money to entertain your readers? I don't think you will hear soon from me again."

Instead of throwing this in the waste basket without comment as there was a strong temptation to do, we will take occasion to say that the piece referred to came into the Editor's hands on the 21st of the month, when the body of the work was actually printed, and only waiting for the advertising sheets to come in, to go to the binders, and then to the mailing office and to the subscriber, so that he could get it as nearly as possible on the date printed on the title page. Possibly our irate but still respected correspondent can take up several hundred letters and communications, read, prove, re-write or correct, and arrange for publication, print, correct proof, strike off, and do all that is necessary to make a monthly number, all in a day or two—but the Editor is not thus accomplished, and he has to insist that unless the matter for publication comes to his hands before the 5th of each month, there is little chance of any note being made of it in the "coming number." Possibly not then if any of the departments have much pressing matter on hand.

We will say in addition that it is extremely rare that we receive a letter from any correspondent, that we cannot make some good use of, and we trust this note will be accepted as an illustration, but we must ask our friend's indulgence as to using our own time in the matter.

THE GOVERNMENT AND MARKET PRODUCE.—Mr. John R. Lomas, New Haven, Conn., sends us a communication in regard to the produce wasted on farms and gardens because it will not pay to send it to market, and then regards the immense number of the poor in manufacturing centres who would gladly buy this produce at low figures if they had the chance. This is a fact. The remedy for this is, he believes, to bring the producer and the consumer together as closely as possible. This is a fact also. To do this he would have the government build and run railroads all over the country, all produce to be delivered for no more than actual cost, much as our Post Office system is worked. Depots—the Grand National Market—everywhere. Here our perception of fact fails. Why not have grand government farms where all the products shall be raised, and grand government manufactories, where all the fabrics shall be turned out? Then we shall have the plan complete.

But those who have given thought to public affairs have come to the conclusion that the duty of every well wisher of his species toward governments is if possible to put an end to them; but as that may not wholly be, to let them interfere as little as possible with what we want to do. The man who is continually looking to "governments" for help in everything is not the man we want to tie to. This we hold as a general principle, and we see nothing in this special proposition to think there should be an exception in its favor. We prefer to wait for some other plan to "bring the producer and consumer together."

NIGHT-BLOOMING CEREUS.—"If the Night-blooming Cereus," says Mr. Falconer "(see p. 279), 'flowers to a day, at the same date in many greenhouses,' what is the Cereus referred to? In greenhouses Cereus grandiflorus is commonly called the Night-blooming Cereus; in window gardens Phyllocactus latifrons is the plant usually meant; and we all know that other Cereuses common in cultivation—for instance, MacDonaldiæ and triangularis—are as truly night-blooming as either of the above. I have grown all of the above sorts, and many more, side by side, for years together, and I can assure you all did not blossom at the same time; not even the several plants of the same species. They blossomed, as a rule, from April till August, but most abundantly in May and June; cœrulescens in April, grandiflorus and MacDonaldiæ in May and June, nycticaulis in June, and triangularis in July. Indeed, the condition of the plants, temperature in which they are grown, and their culture, had considerable influence on their blooming period."

[As our correspondent well observes, there are numbers of Cereuses which bloom only at night. But, so far as we know, the only "Night-blooming Cereus" of horticultural literature is Cereus grandiflorus. At any rate, this was the species referred to.—Ed. G. M.]

GLASS

For GREENHOUSES, GRAPERIES, CONSERVATORIES, HOT HOUSES AND HOT BEDS.

VANHORNE, GRIFFEN & CO.,

IMPORTERS OF FRENCH WINDOW GLASS. ALSO AMERICAN WINDOW GLASS. tau18

131, 133, 135 & 137 Franklin St., New York City.

Art of Grafting and Budding

BY CHARLES BALTET,

Appropriately and fully illustrated by 186 cuts, showing methods, tools and appliances. Pp. 230, 12 mo. cloth, flexible. Price $1.25 mailed, postage free. Address,

CHAS. H. MAROT, 814 Chestnut Street Phila.

ASPARAGUS CULTURE.

The BEST METHODS EMPLOYED in ENGLAND and FRANCE.

BY JAMES BARNES AND WM. ROBINSON.

With translations of Mr. Lebeuf's Essay on Asparagus, and particulars of the seven years competition instituted for its improvement. Illustrated with wood cuts. New edition. 84 pages. 50 cents by mail on receipt of price. Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

CRANBERRY CULTURE.

BY JOSEPH J. WHITE

Embodying in plain and concise manner all the useful and practical facts which study and experience have yielded to the inquiring Cranberry grower of the present time. 126 pages, 12 mo, cloth. Illustrated. Price, post-paid $1.25. Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

FRUIT GROWER'S FRIEND.

AN EASY GUIDE FOR THE

Raising of Fruits for Pleasure or Profit

BY S. M. MAINES.

Paper, 34 pp., 8vo, price 30 cents; mailed post-paid on receipt of price. Address,

CHAS. H. MAROT,
814 CHESTNUT STREET, PHILA.

ROSES IN POTS;

observations on their Cultivation including the Autobiography of Pet-Rose,

by WM. PAUL.

98 pages, cloth, illustrated. Price, $1 00

Sent Prepaid by mail on receipt of price.

CHAS. H. MAROT, 814 Chestnut Street, Phila.

A MANUAL OF VEGETABLE PLANTS,

BY ISAAC F. TILLINGHAST.

Containing the experiences of the author in starting all those kinds of vegetables which are most difficult for a novice to produce from seed; with the best methods known for combating and repelling noxious insects and preventing the diseases to which garden vegetables are subject. 102 pages, 16mo, cloth, price, $1.00, mailed, post-paid, on receipt of price. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

SECOND-HAND BOOKS

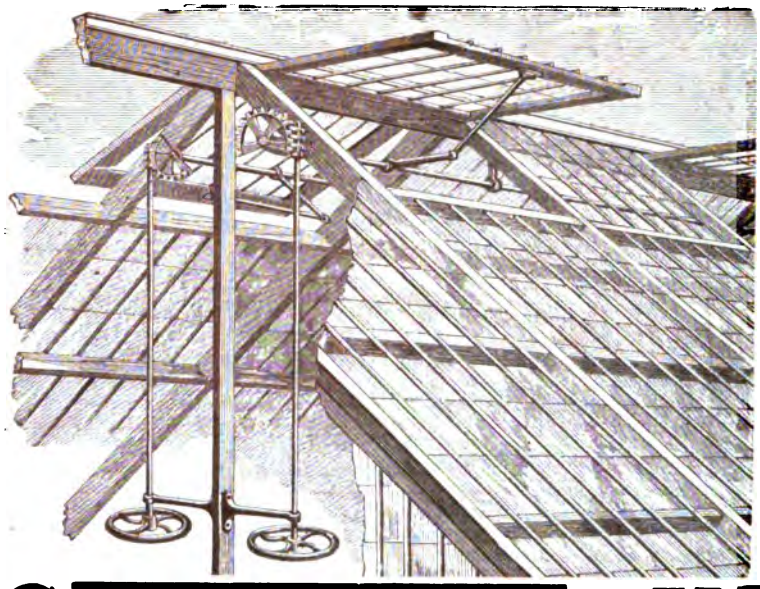
BY MAIL ON RECEIPT OF PRICE.

SPEAK QUICKLY IF YOU WANT THEM.

☞ Say in your order, "Second-Hand List." ☜

Allen's Domestic Animals	$ 75
" American Farm Book	1 00
" Rural Architecture	1 00
Art of Propagation	20
Beet Root Sugar, Grant	1 00
Bicknell's Village Builder & Supplement, Fol. (plates)	6 50
Bommer's Method of Making Manures	20
Brackett's Farm Talk	50
Breck's New Book of Flowers	1 45
Bridgeman's American Kitchen Gardener	50
Butler's Family Aquarium	50
Chavner's Diseases of the Horse	1 00
Coultas' Principles of Botany	50
Downing's Cottage Residences	1 25
" Landscape Gardening and Rural Archit..	4 50
" Rural Essays	2 85
Emmon's Agriculture of N. Y., 3 vols. 4to, plates, &c.	15 00
Fruit, Flower and Vegetable Gardener's Companion..	1 00
Fulton on Peach Culture	1 25
Grape Culture and the Strawberry, Buchanan	75
Gray's Lessons in Botany	1 00
" School and Field Botany	2 25
Green and Congdon's Botany, Quarto Illustrated	1 50
Half-hours in the Green Lanes, Taylor, Illustrated	1 75
Harris on Injurious Insects, colored plates	5 50
Hey's Mrs., Sylvan Musings, 23 col. plates, full calf	5 00
Hoffey's N. A. Pomologist (Dr. Brinkle) 36 col. plates, Quarto	3 00
Hooper's Western Fruit Book	1 00
" " " "	50
Klippart's Land Drainage	1 25
Lee's Mrs., Trees, Plants & Fl'rs col. plates, full calf.	6 00
Lee's Mrs., Trees, Plants & Flowers col. plates, cloth..	4 50
Liebeg's Turners' Chemistry, 1394 pp., 8vo	3 50
Loudon's Encyclopædia of Gardening, ½ turkey	10 00
MacDonald's Food from the Far West	2 00
Mayhew's Illustrated Horse Management	2 50
Merrick's Strawberry Culturist	50
McIntosh's Orchard, with colored plates	3 00
Minot's Land and Game Birds of New England, Ill'd..	2 50
New American Gardener	75
Parson's on the Rose	1 15
Paxton's Hort. Register, 2 vols. in one (1831-1833)	1 00
Philadelphia Business Directory, 1879, Boyd	25
Prince on the Vine	75
Prince's Pomological Manual	75
Randall's Sheep Husbandry	1 25
Rand's Flowers for Parlor and Garden, cloth	2 25
" " " ½ tky, gilt edges	2 50
Riddell's Architect, folio, 14½x17½ (col. plates)	10 00
Scribner's Log Book	20
Stewart's Stable Book	1 25
Studies, by J. A. Dorgan	75
Talpa, or Chronicles of a Clay Farm	75
The Plant, a Biography, 5 col. plates and 13 wood eng's	2 50
Thomas' Fruit Culturist	1 75
Todd's How to Make Farming Pay	2 00
Tull's Horse-hoeing Husbandry	1 00
Waring's Elements of Agriculture	75
Williams' Window Gardening	1 25
Woodruff's Trotting Horses of America	2 00
Wood's Class-book of Botany for Schools	1 00
Young Angler Illustrated	75

Address, CHAS. H. MAROT,
814 Chestnut Street, Phila.



EXETER VENTILATING APPARATUS.

Best and Cheapest in the Market.

Adapted for all Styles of Houses.

Illustrated Catalogue upon application.

GREENHOUSE HEATING

BY STEAM, BY HOT WATER, BY COMBINATION STEAM AND WATER.

EXETER MACHINE WORKS,

50 FEDERAL ST., BOSTON, MASS. tf12 **WORKS—EXETER, N. H.**

Architects' and Builders' Pocket Companion

AND PRICE BOOK,

By FRANK W. VODGES, Architect.

Consisting of a short but comprehensive epitome of Decimals, Duodecimals, Geometry and Mensuration, with tables of U. S. Measures, strengths, etc., of iron, wood, stone and various other materials, quantities of materials in given sizes and dimensions of wood, brick and stone, and a full and complete *bill of prices for Carpenter work*. Also, rules for computing and valuing brick and brick-work, stone-work, painting, plastering, &c., 284 pages, 16mo, cloth $1.50. Tuck, $2.00. Sent by mail postage free, on receipt of price. Address,

CHAS. H MAROT, 814 Chestnut St., Phila.

HOUGH'S ELEMENTS OF FORESTRY

Designed to afford Information concerning the Planting and Care of Forest Trees for Ornament or Profit; and giving Suggestions upon the Creation and Care of Woodlands, with the view of securing the Greatest Benefit for the Longest Time. Particularly adapted to the Wants and Conditions of the United States.

By FRANKLIN B. HOUGH, PH.D.,

Chief of Forestry Division, Department of Agriculture, Washington, D. C.

Large 12mo, pp. 381. Numerous Illustrations, $2.00. Will be sent by mail, prepaid, on receipt of price. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

GREENHOUSES HEATED

BY LOW PRESSURE STEAM.

mh12 SATISFACTORY PERFORMANCE OF APPARATUS GUARANTEED. ADDRESS,

E. H. BOCHMAN, - - - - Box 373, Pittsburgh, Pa.

Kissena Nurseries.

Trees and Plants.

Parsons & Sons Co.,

LIMITED.

Flushing, N. Y.

ftf

Truck Farming at the South

A Guide to the Raising of Vegetables for Northern Markets.

BY DR. A. ORMLER,

Prest. of Chatham Co., Georgia, Fruit and Vegetable Growers Association. Illustrated. 12 mo., cloth, pp. 278. Price $1.50. Mailed, post-paid. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

MUSHROOM CULTURE.

ITS EXTENSION AND IMPROVEMENT,

BY WM. ROBINSON.

With numerous illustrations, 172 pages, cloth. Price, 75 cents. Mailed, post paid, on receipt of price.

CHAS. H. MAROT, 814 Chestnut St., Phila.

NOV 1 1884

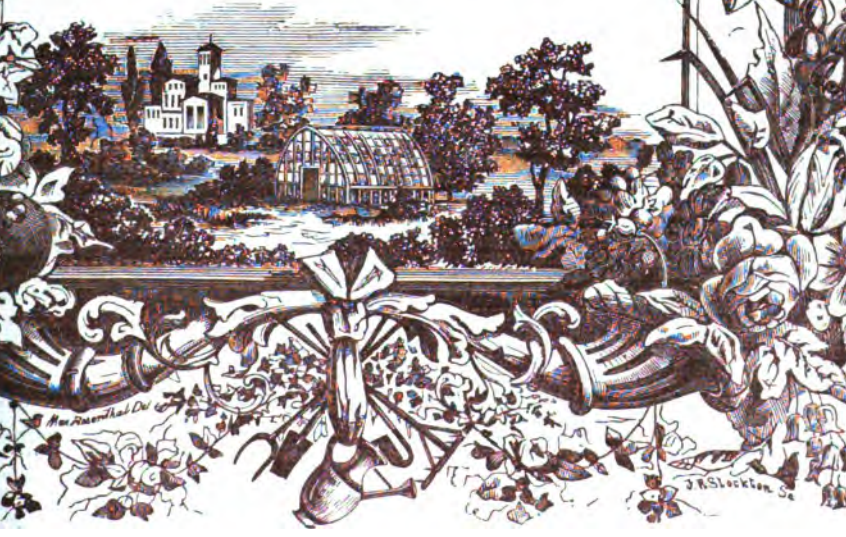
Harvard College Library

THE GARDENERS' MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

Vol. XXVI. No. 311.
(Combined Magazines, Thirty-ninth Year.)
NOVEMBER, 1884.

PUBLISHED BY CHARLES H. MAROT,
814 Chestnut Street, Philadelphia.



[Entered at the Post Office, at Philadelphia, Pa., as second-class matter.]

THE GARDENERS' MONTHLY
AND HORTICULTURIST.

It is published on the first of every month at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS relating to subscription or advertising should be addressed.

☞ Communications, Copy and Packages for the Editor should be addressed to THOMAS MEEHAN, GERMANTOWN, PHILADELPHIA.

SUBSCRIPTION PRICE, POSTAGE PAID, $2.00.

ADVERTISING RATES IN THE GARDENERS' MONTHLY:

	⅛ col. or 12 lines.	¼ col. or 16 lines.	⅓ col. or 24 lines.	½ col. or 32 lines.	⅔ col. or 48 lines.	1 col. or 96 lines.	1 page, or 192 lines.
One Insertion	$3.00	$4.00	$5.50	$7.00	$10.00	$18.00	$35.00
Two times, each	2.90	3.90	5.00	6.80	9.80	17.00	33.00
Three " "	2.80	3.75	4.75	6.55	8.50	15.50	30.00
Four " "	2.70	3.60	4.50	6.30	8.10	14.40	27.00
Five " "	2.55	3.40	4.25	5.95	7.65	13.60	25.50
Six " "	2.35	3.15	3.93	5.50	7.05	12.45	23.50
Seven " "	2.20	2.95	3.65	5.15	6.60	11.75	22.00
Eight " "	2.05	2.75	3.45	4.80	6.15	10.95	20.50
Nine " "	1.90	2.45	3.20	4.45	5.70	10.15	18.85
Ten " "	1.75	2.30	2.85	4.05	5.25	9.30	17.45
Eleven " "	1.60	2.15	2.65	3.75	4.80	8.55	16.15
Twelve " "	1.50	2.00	2.50	3.50	4.50	8.00	15.00

Twelve lines nonpareil is ⅛ col. A less space than ⅛ col. will be furnished at same rate per line as ⅛ col.
For space on FLY-LEAF and COVER PAGES, also FIRST PAGE advertisements facing last reading page, 20 per cent. advance on above rates will be charged.

CHAS. H. MAROT, Publisher, 814 Chestnut St., Philadelphia

CONTENTS OF THE DECEMBER NUMBER.

SEASONABLE HINTS:

Flower Garden and Pleasure Ground 353
Greenhouse and House Gardening 357

COMMUNICATIONS:

Ipomœa Grandiflora 354
Note on Caladium 354
Sedges for Lawns 355
A Use for Worn-out Hose 355
Carnations, Pansies and Violets 358
An Oil Experiment and a Thermometer Test 362
Olives in Texas 363
Some New White Grapes 364
Geography of Plants 367
A Birch Growing out of a Chestnut Tree 369
Water Plants 369
A Little Excursion in Washington Territory 374

EDITORIAL NOTES:

Victoria regia in the Open Air—Consumption of Smoke—Aralia spinosa—Heliopsis lævis—Rose Hedges in Texas—Rosa Carolina: A Beautiful Summer Rose—Hybrid Lobelias—Sports From Roses—White and Yellow Broom—The China Tree 355-358
Roses in Winter—Winter Culture of Mignonette—A Wash to Kill Scale—A Fine Howell Pear—The Enterprise Meat Chopper — American Small Fruits in Japan—The White Celeries of Europe —Marlboro Raspberry — Prunes — Diseases of Fruit Trees—Crawford's Early Peach—A Heavy Yield of Apples — Canadian Apples — Blissful Ignorance 359-364
The Hardest Wood Known—Cost of a New Jersey Forest Fire—Forestry in Japan—The Wattles for Tan-bark—A Large Walnut Tree 366-367
Dichromism in Grapes—Euadenia eminens—Bay Rum—"Fertilization by Insects"—The Palmetto in Florida—Cereus latifrons 370-373
W. D. Brackenridge—Eli K. Price—Typographical Errors — Bad Books—Phylloxera Laws — French Market Gardeners—Caryophyllus, the Carnation—Bible Flowers—Cultivated Plants and the Time of their Introduction—The Inventor of Shaking for Curculio—Diseases of Field and Garden Crops—Three Visits to America—Rural Taste—Forestry 375-381
Chrysanthemum Show at Horticultural Society's Hall, Philadelphia—Proceedings of the Mississippi Valley Horticultural Society—Massachusetts Horticultural Society 382-384

NEW OR RARE PLANTS:

Origin of the Petunia—Odontoglossum vexillarium rubellum 380-381

SCRAPS AND QUERIES:

Moles and the Castor-Oil Bean—Fruiting of Akebia quinata—Variegated Bitter-Sweet—Propagating Bermuda Grass for Lawns—Disease in Rose Leaves—A Rhododendron Borer 356-357
Propagating Oxalis floribunda—Flowering of a Night-blooming Cactus 360
Downing Grape—Avoiding the Odor of Onion—Large Quinces—Evergreen Blackberry 366
Blooming of Phyllocactus Grandis—"Heart Hybrids"—Vanilla Plants in Florida—Cocculus Carolinianus—The Healthfulness of London Smoke—Hybridization in Asters 372
Pronunciation of Veronica—Whittier's Poem on the Burning Bush—Sir Michael Bass—Forest and Botanical Work—Downing's Fruits and Fruit Trees—Mr. F. B. Hayes, Late President of the Massachusetts Horticultural Society—Origin of the Name, Veronica 381-383

FLOWER GARDEN & PLEASURE GROUND. 353-357
GREENHOUSE AND HOUSE GARDENING 357-361
FRUIT AND VEGETABLE GARDENING 362-366
FORESTRY 366-367
NATURAL HISTORY AND SCIENCE 367-370
LITERATURE, TRAVELS & PERSONAL NOTES 370-375
HORTICULTURAL SOCIETIES 382-384

NOV 1 1884

THE

GARDENERS' MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

VOLUME XXVI. NOVEMBER, 1884. NUMBER 311.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Whittier somewhere has some beautiful thoughts which we cannot now recall in the original verse, warning us against the belief that all that is grand has gone before. The glory of Sinai and the great mystery of the Burning Bush, are everywhere about us he says still, if we will only open our eyes to see. So thought we when reading recently a paper in a popular magazine on the lost arts of gardening. The glories of Persian flowers, and the hanging gardens of Babylon were spoken of as sights, the equal of which the world again would never see. Then, perhaps, we never may, even if the halo of age has not given them a charm they never themselves possessed; but beauties the ancients never saw are still in the world to day, and here in our own land we may have garden charms that no other portion of the earth may enjoy. We may not have just what other people have; but our warm summers, and dry and sun-lighted winters; our numerous spring flowers and brilliant autumn scenery, which of itself rivals Whittier's envied Burning Bush; all give us advantages together which cannot be had in any part of the world. But unfortunately—the slaves of old world ideas to a great extent—comparatively few wealthy of our own people take the same personal interest in landscape gardening and garden beauty, as do the more independent class in the old world. Very seldom do we find any of this class willing to lead off in the encouragement of horticultural societies, as do the wealthy independents of the old world; and even a horticultural society, instead of being a body for the encouragement of a fine art, has in many cases come to be considered as little more than the adjunct to a farm; and in nine cases out of ten, the whole exhibition is mixed up with fat oxen, fast horses, or the dog show. Then our literature follows European garden literature, and even our best practicing gardeners receive their education in a foreign land. All this is not favorable to the distinctively American style of gardening, which we might have if more attention could be drawn to the "Burning Bushes" everywhere around. When we look on our woodland just as we write, gay with the brilliant tints of the black gum and sassafras; the broken underbrush where sumach and spice bush predominate; and the waste places brilliant with asters, golden rods and cinnamon ferns; and note how these elements alone might be improved on, we cannot but feel what a field is here. For, be it remembered, that true gardening does not consist in forcing trees and shrubs and flowers into forms, the likeness of which we do not find either in the heavens above or the earth beneath, but in taking the best features of nature which she

only exhibits here and there, and combining them into a beauty spot which even gay nature would herself stop to admire. And let this be our "Seasonable Hints" for this month. We usually devote our thoughts more to the hewers of wood and the drawers of water, in these chapters. To-day let us talk with those who love beauty, and gardens filled with it. It is surely their field-day, when all is so suggestive everywhere around. Study well what is to be seen. Think well over it during the coming winter months. Read works on landscape art and landscape work if you will; but let the lessons of American autumn scenery have a due place among your thoughts, and when in the spring-time you will have decided on what your garden shall be like for the next year, we are sure our hints here given will not be lost.

COMMUNICATIONS.

OUR FRIEND, THE MOLE.

BY MR. THOMAS BENNETT.

Until Ecclesiasticus told us so, I never knew the mole was our friend; but this is the endearing manner in which he speaks of them: They do not eat roots—they only throw up the ground! We will let the vegetable gardeners of Florida, Bermuda, Charleston and elsewhere, decide. To tell them that it is easy to tread down the burrows the mole makes, is sarcasm. I am satisfied that castor-oil beans will drive away moles. I have not any beans to sell, nor any motive in writing but the public good. If people try the method who are troubled with these "friends," well and good; if they have no faith in it, and do not care to try it, well and good also.

But, bless my stars! "No animal in a state of nature will eat any natural substance to its own destruction or great injury." What about the Andromeda, or "Kill Calf?" and what about the "loco weed," or Astragalus mollissima, the doings of which Prof. T. C. Porter only so recently described? Perhaps Ecclesiasticus will say these animals are not what he means by "a state of nature;" they are domestic, but not wild animals. If he take refuge under this flimsy veil, how about the beans from which the natives of the West Indies get a paste with which they intoxicate fish and catch them? Is not intoxication a great injury? Or is a fish not an "animal in a state of nature"?

I am as well aware as Ecclesiasticus, that scientific men say moles are solely carnivorous; but they say a great many things, and have often been compelled to eat their own words. If I had never known a scientific man to be mistaken, I also might doubt my own experience, and then believe that a mole would not eat a castor bean.

Chambersburg, Trenton, N. J.

GOLDEN MATRICARIA.

BY ERNEST WALKER.

Since sending the brief note (page 229, Aug. G. M.) on "Variation in Feverfew," or cross-fertilization, as I regarded it, but which the Editor seemed to think quite impossible, I find among the seedlings planted out two plants which present every indication of being crosses between the Matricaria Pyrethrum, Parthenium aureum, or Golden Feverfew. The plants in growth and flower resemble the Matricaria, but have the yellow foliage of the Golden Feverfew, and are of dwarfish habit, forming compact plants not exceeding ten inches in height, and literally covered with the double-white flowers of the Matricaria, which have been produced continuously from the time the plants were three inches high, from seed, producing flowering plants the first season.

New Albany, Ind.

[It was not the intention to convey the idea that the suggested crossing was impossible—only unlikely. For reasons given in our last, it is probable that all compound flowers are fertilized from pollen from the same plant; and then there is no necessity for assuming cross-fertilization when we know how widely plants vary even when known to be self-fertilized.—Ed. G. M.]

SEDGES FOR LAWN GRASS.

BY FILIX.

I intend to make trial of Carex novæ-angliæ and of other of the more grass-like of the upland carices and sedges in place of lawn grass. On our light South Jersey sands the merest touch of drought plays havoc with the lawns. Yet in ranging the pine woods I often find delicious footing on a carpet of golden-green Carex, even in midsummer. Of course it will be needful to propagate by transplanting the sods; for most of the smaller sedges are sparing in the production of seed.

Was there ever such a year for rose-bugs? If one might improve a little upon Herrick, we would sing—

"Gather ye rose-bugs while ye may."

The Fernery, Merchantville, N. J.

FLOWERING OF THE CLIMBING HYDRANGEA.

BY WILLIAM FALCONER.

"For the first time in this country, I believe, the Climbing Hydrangea has flowered," says Mr. Peter Henderson, p. 259. In the *Rural New Yorker*, September 22d, 1883, you will find an account by me of the Climbing Hydrangea that was in blossom in June of that year in the Hon. Marshal P. Wilder's garden, near Boston. It was "climbing up the trunk of a pear tree, which it completely covered in the same way as an English Ivy would. There were several bunches of flowers—immense, broad-spreading, flat cymes, with a few enlarged white sterile flowers near the margin. The flower-heads were not showy, rather more curious than beautiful; but in profusion, on large plants, they must have a most distinct and striking effect." As you say, it grows slowly at first, but as it grows older it becomes vigorous. It is very hardy. It roots along its stems and shoots, as an ivy does, and attaches itself firmly to a rough surface, as the bark of a tree-trunk, but I have never known it to cling tenaciously to a stone surface. The American Climbing Hydrangea, Decumara barbara, is in cultivation in the Botanic Garden, Cambridge; at least it was there during my time, but I never could get it to assume the vigorous nature of its Asiatic relative, and it isn't as hardy.

Glencove, Long Island, N. Y.

NEW FRENCH ROSES.

BY JEAN SISLEY.

It has occurred to me that your readers might like to know what new roses will be offered by French growers the coming fall, and I have collected all accounts about them and append herewith. As a comparison with the prices you get in America for new roses, I may say that here five dollars is about the ruling price for a recent new rose, and these grade down to seventy-five cents each for those of as recent years.

Tea Annette Murat (Levet). Lemon yellow, free bloomer, fine.
Tea Alexandrine Bruel (Levet). Very pure white, fine shape.
Tea Charles Legrady (Pernet Fils). Very fine shape, nearly full, light crimson or dark pink.
Tea Souvenir de Gabrielle Drevet (Guillot). Large, full, white, shaded light salmon, center rose.
Bengale Madame Jean Sisley (Dubreuil). Medium size, full, fine shape, pure white, very free bloomer, fine for forcing.
H. Bourbon Mlle. Berger (Pernet). Medium size, full, light rose.
Hybrid Perpetual Baronne Nathaniel de Rothschild, (Pernet). Very large, globular, nearly full; fine tender rose.
Hybrid Perpetual Admiral Courbet (Dubreuil). Fine shape, full, pinkish crimson, fine scent.
Hybrid Perpetual Madame D. Wettstein (Levet). Cherry red, very free bloomer, good shape.
Hybrid Perpetual Docteur Dor (Liabaud). Very large, full, dark cherry red, shaded darker, scent of Teas.
Hybrid Perpetual Etendard de Lyon (Gonod). Large, fine shape, purplish crimson.
Hybrid Perpetual Madame Pitaval (Liabaud). Large, full, light cherry red.
Hybrid Perpetual Madame Stingue (Liabaud). Large, purplish red, fine.
Hybrid Perpetual Monsieur Hoste (Liabaud). Large, full velvety crimson.
Hybrid Perpetual Souvenir de Labruyere (Gonod). Fine shape, vivid rose, center darker, free bloomer.
Hybrid Perpetual Gloire Lyonnaise (Guillot). Large, full, fine shape, vivid creamy white, center yellowish, fine scent, very free bloomer.

BEST NEW ROSES OF 1883.

Teas—Baronne de Sinety, Clothilde Soupert, Edouard Gautier, Madame de Watteville, Souvenir de Rambaux.
Hybrid Perpetuals—Antoine Mermet, Alphonse Soupert, Eclair, Julie Gaulain, Joseph Metral, Louise Crétien, Louise Aunier, Madame Dellevaux, Souvenir de Leon Gambetta.
Dwarf Perpetuals—Polyantha Perle d'Or, Anna Benary.

BEST NEW ROSES OF 1882.

Teas—Honorable Edith Gifford, Jeanne Abel, l'Elégante, Madame Eugene Verdier, Souvenir de Therese Levet.
Hybrid Perpetuals—Adelaide de Meynot, Alexandre Dupont, Baron Nathaniel de Rothschild, Centenario de Camois, Fanny Giron, Marie Digat, Marie Lagrange, Madame Eugene Labruyere, Madame Rochat.
Hybrid Bourbon Malmaison rouge.

BEST NEW ROSES OF 1881.

Teas—Beauté de l'Europe, Etoile de Lyon, Madame Cusin.
Hybrid Bourbon Abbe Girardin.
Hybrid Perpetuals—Ernest Prime, Fortunie Besson, Francois Olin, Helene Paul, Marie Chauvet, Marie Bianchi, Ulrich Brunner, Violette Bowyer.
Dwarf Perpetual Polyanthas—Anne Marie de Montravel, Cecile Brunner, Mignonnette, Paquerette.
Noisette Caroline Schmitt.

ENGLISH ROSES.

Hybrid Perpetuals—Lady Mary Fitzwilliam, Earl of Pembroke, Distinction, Heinrich Schultheis.
Tea Princess of Wales.
Hybrid Perpetuals—Michael Saunders, Beauty of Stapleford, Viscountess Falmouth, Duchess of Bedford, Duke of Albany.

Montplaisir, France.

ROSES AT AUBURN.

BY DAVID M. DUNNING.

For the past three weeks we have had very hot, dry weather, which has been particularly hard on Hybrid Perpetual Roses, causing less bloom than usual at this season. Those which have given the most late bloom with me are Marie Bauman, Marguerite de St. Amande, Marquis de Castellane, Gen. Jacqueminot, Baroness Rothschild, Louis Van Houtte, Eugenie Verdier, and Countess Serenge. Among the Bourbons, Hermosa and Appolino are invaluable, and the Hybrid Tea, La France, is decidedly the best rose for all purposes. The Polyantha rose, Cecil Brunner, is a marvel, giving a great quantity of perfect blooms.

While on this subject I want to say, that I have never been able to distinguish what many writers call a second season of bloom for H. P. roses. My roses give a scattering bloom continually

after the June flowering, gradually less until cut off by frost. They are cut back severely in gathering the flowers, but no other pruning is given them through the summer season.

Auburn, N. Y.

[Here near Philadelphia also, Hybrid Perpetual roses have flowered continuously all summer. It was very dry about flowering time, ripening the wood. Then followed continuous rains, exciting a second growth, which is all that is needed for a second crop of roses.—Ed. G. M.]

EDITORIAL NOTES.

A BOY-POWER PUMP.—Just now every thought is turned towards utilizing waste power. Doggy has been set to churn butter, and there is some talk about putting Niagara Falls to some useful task. The Germans have thought of the surplus energy of the wild boy. We have all seen with what delight he takes hold of the hose and sprinkles the dust in the road, or the grass plot in front of the house, and in Berlin they have hit on a scheme to make the little fellow pump as well as hold the hose. He is represented on a nicely balanced platform, and, as he sways a little from side to side, the lever is worked which raises the water.

SMOKE AND PLANT CULTURE.—In the West where bituminous coal is used, gardening has to get out of the way, except so far as relates to a limited number of plants. In Cincinnati numbers of species of evergreens, once hardy enough, are hardy no more. It is singular that the smoke nuisance has been permitted in towns so long as it has. It costs but very little to arrange in each factory for the consumption of smoke. Chicago has abolished much of the nuisance, and other cities might follow to advantage. London, in England, is beginning to move in the matter. It is said human beings can scarcely live there. A bill has been introduced into the English Parliament looking to the abatement of smoke.

GOOD HARDY CLIMBING ROSES.—These are not numerous, and there are a few very good ones that have been neglected. An old one, Felicite Perpetue, is a capital, vigorous grower, and, withal, a charming bloomer, the flowers being in dense clusters like the original Noisettes. We have not seen one for many years. We think it would be well worth while for some one to re-introduce it.

VICTORIA REGIA IN THE OPEN AIR IN ENGLAND.—In a similar manner so successful with Mr. Sturtevant, of Bordentown, N. J., the engineer of a colliery in Staffordshire has heated a large pond of water by waste steam from an engine, and now has this famous Amazon lily blooming there in magnificent perfection; as many as a dozen flowers have been open at one time. This ought to be still more encouraging to American flower lovers. In many places the natural summer heat of pond water should be enough to grow the Victoria very well.

THE JAPAN JUDAS TREE.—This is much dwarfer than either of the other two well known species. The flowers are brighter, and it is a little gem in the way of garden ornament. Those who wish for something very pretty, and not occupying much room, should make a note now to plant one next fall.

THE OLEANDER POISONOUS.—That the Oleander is a very poisonous plant is certain. It was the Rhododendron of the ancients, and most likely much of the poisonous character reported to be possessed by the modern Rhododendron, has no more foundation than that it happens to bear a name formerly belonging to a very different plant. But with this general knowledge of the poisonous properties possessed by the Oleander, we do not know of any case of injury in the East, though it is grown in almost every garden from Maine to Florida. But in the Pacific papers we once in a while see a warning note. We give the following from a California paper, chiefly as a matter of news, only remarking that we believe the statements show signs of reportorial exaggeration, which too often go in these days as evidences of peculiar fitness for a reportorial course:

"Every summer, when the beautiful oleander is in bloom, some cases of persons being poisoned by this flower have been recorded. Last year a young lover at Oroville was nearly fatally poisoned, by chewing the leaves of an oleander bouquet, given him by his sweetheart, and a young gentleman and lady at Marysville, came near climbing the "golden stairs," by chewing the twig of an oleander bush. This flower is usually of a rich pale red, but is sometimes white, and is a lovely, sweet scented bloom; but the wood and all parts have a poisonous action, resembling that of digitalis, and is best treated by a judicious use of stim-

ulants. The first instance of poisoning this year, has just reached a *Record* reporter, who was informed by a person conversant with the facts. One evening last week, a young lady named Sadie Meeker, residing with her parents, near Vina, carelessly chewed an oleander bud. In a short time afterward she was taken deathly sick, and probably would have died had not medical assistance been immediately brought from Tehama. Her mouth and face were distorted out of recognition, and the pains suffered by the girl were most intense. Happy to relate, though, she is now recovering, but her once pretty mouth now looks like a piece of raw liver."—*Chico Record.*

SIBERIAN LILAC.—We all like to prolong the season of favorite flowers, and there are few more choice favorites than the old-fashioned Lilac. The Syringa Josikæ, or Siberian Lilac, comes in after the common kind has gone, and we have thus Lilacs for a good month. It is of a bright purple color.

TEA ROSE, ELIZE SAUVAGE.—This very old rose, almost lost in the East, is one of the most popular in California.

PERENNIAL LARKSPURS.—Just now, when herbaceous plants are again attracting the attention of cultivators, the Delphinium, in its numerous varieties and species, is much admired. They stand the summer heat well, and, about midsummer, are among the gayest of the garden flowers.

SCRAPS AND QUERIES.

PROTECTING ROSES.—"R.," of Pennsylvania, says: "I have quite a lot of young Hybrid Perpetual Roses that were planted out in the open ground in July last, and, owing to the very dry summer, they have not made very much growth. They will not average more than 10 or 12 inches in height, by the time cold weather checks their growth. He fears they will not be strong enough to stand the winter, without protection, and asks the Editor the safest and cheapest mode to protect them. There being about 10,000 of them, the plan must not involve any great amount of labor, if avoidable. Please answer in October number."

[This did not come before the Editor till the 14th of September, and hence could not be noticed in the October number. We should plough, dig, or hoe out a gutter on one side of the plants, as late as possible to avoid freezing up, press each plant over towards the gutter in a slanting direction, and then plough or draw, in some way, the earth over them. In the spring, as early as possible, uncover and set the plants upright again.—Ed. G. M.]

SHADE TREES FOR FLORIDA.—"Y. C. P." writes: "I wish to ask a question about shade trees below 29th parallel latitude. What would be most suitable for shade trees? Would you recommend the Water Oak, Pecan Nut, Tulip, Sweet Gum, Soft or Silver Maple, or all of these; or any other kind, on rather high, sandy land, such as is suitable for orange-growing? Any information on this point would be thankfully received."

[By shade trees our correspondent means, probably, street trees. Of those he names, the Water Oak, Sweet Gum and Tulip tree, would do very well in Florida; but there are so many more beautiful trees adapted to the South, which will not do at all in the Middle States, that we should prefer them. Among these, say, for instance, the China tree, Melia azederach; Cherry Laurel, Cerasus Caroliniensis; or the Tallow tree, Stillingia sebifera. —Ed. G. M.]

DOUBLE HYDRANGEAS.—Nanz & Neuner, write: "In reply to your question on page 263 about Hydrangeas, we say, that we had several of the Hydrangea, Thos. Hogg, come double with us for the last two years, but they are not constant, nor would it be a great improvement."

FLOWERING OF THE CLIMBING HYDRANGEA. —Col. Wilder writes: "Strange indeed, that neither you nor Mr. Henderson knew that the Climbing Hydrangea had bloomed in this country before this year. I have shown large branches of it for two or three years at our horticultural society rooms. My plant is ten to twelve feet high, climbing amongst the branches of an old pear tree."

GARDEN OF MR. H. H. HUNNEWELL, AT BOSTON.—An American gentleman, a rare lover of gardening, and who has traveled extensively in Europe, pays these gardens the following compliment: "I have no words to express my admiration of Mr. Hunnewell's grounds and greenhouses. Under the guidance of one of Mr. Harris's assistants, we spent several hours in looking through the splendidly-furnished glass-houses and his charming parks and gardens, and was sorry then to be obliged to leave them. I had no idea that such a collection of magnificent plants existed in America, and his grounds will compare favorably with the handsomest places we have seen in England. Such specimens of rare Dracænas, Crotons, Anthuriums, etc., I have never seen anywhere; not even in the most noted houses of England or Belgium."

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

"How often shall I water my plants?" asks the purchaser of a small bill at the nursery. In window gardening the water question is also one of the anxious ones—and even in the regular operations of gardening, under the treatment of quite practiced hands, the relations of water to plant life is not as clear as it might be.

We shall understand better how to water if we correct first some impressions derived from old works on physiology. It is said that plants want water. This is not strictly true. Water is found in plants, but it enters rather in the shape of vapor.

A soil that is wet will grow only water plants; and it is a remarkable fact that these water plants seem to have very little water in them. A reed or bulrush grown in water has far less water in its structure than a nearly allied species grown on the dry land. The plants which have most fluid matter in them are those grown in the dryest places. The deserts of Africa abound in Euphorbias; while on the plains of Mexico the only moisture wild cattle can often get is from the large spiny Globe Cactuses, which they manage to cleave open with their hoofs.

A wet soil is totally unfit for plant growing. A plant standing twenty-four hours in water is often irreparably injured. A Hyacinth, to be sure, will live one season in water; but all the matter which goes to make up the flower is prepared the year before, and after flowering the bulb is exhausted and almost worthless.

A good soil for plant growing, therefore, is not one which will hold water; but one in which water will rapidly pass away.

The soil itself is composed of minute particles, through which air spaces abound. The water must be just enough to keep these particles moist, and the air in the spaces is thus kept in the condition of moist air. The roots traverse these air spaces, and it is therefore moist air which roots want, and not water.

If it were water simply which plants wanted, we should cork up the bottom of the hole in the flower pot, and prevent the water getting away. Instead of this we try to hasten the passing of the water through as much as possible; by not only keeping the hole as clear as possible, but often by putting pieces of broken material over the hole.

A plant will generally be the healthiest, therefore, which wants water the oftenest. This will show that there are plenty of air spaces, and that the roots are making good use of them. If it does not often want water it is in a bad way, and more water will make it worse.

How often to water them will be according to how easy the water passes away. If when you pour water on earth it disappears almost instantaneously, it would be safe to water such plants every day.

The greenhouse will now begin to look more natural, after having had the stock housed last month. With many plants having probably been taken up out of the open ground, dead leaves will daily appear, requiring frequent removal. Neatness is one of the chief beauties of a greenhouse. Acacias, and Australian plants generally, with hard wood and delicate roots, should be placed at the coolest end of the house, where little water will be required. These plants should not be watered often; but when they are, it should be thorough. Frequent waterings soon render the roots of these plants unhealthy, when it is very difficult to restore them to vigor. Whenever the foliage becomes of sickly yellow hue, the best plan is to plunge the plant in a larger pot, filling the space with moss—and when the plant requires water, give it only through the moss, unless the plant seems to become so dry as to suffer, when it should receive one thorough watering. Very little fire should be applied to a greenhouse—just sufficient to keep it at about 45°. Unless very far north, but little fire-heat will be required this month.

Window plants should not be kept very warm at this season. They should have all the sun and air, and as little of the artificial heat of the room

as possible. These remarks apply especially to Mignonette, which is very impatient of in-door confinement. Succulents, such as Cacti, are excellent window plants in this respect, as the dry air does not affect them. To keep the air about the plants moist, is one of the secrets of window culture. Some who have very fine windows well stocked with fine plants, make glazed cases with folding doors of them, by which, when the room is highly heated and very dry, they can be enclosed in an atmosphere of their own. In such cases, Ferns and Mosses can be grown to perfection, and pendant plants in hanging vases give a Brazilian forest appearance to our happy Christmas homes.

Hanging baskets, on the other hand, are generally too dry. Besides the daily waterings, about once a week they should be immersed in a bucket of water.

Plants stored away for the winter in cold pits, require more care for the first month or so than at any other time through the winter season. Many of them have unripened shoots, or shed many of their leaves, and unless they be cut off and removed, gangrene and decay commit distressing havoc. Air should be given at every opportunity, and nothing omitted that will, in any way, tend to harden the plants, and send vegetation to rest. No more water should be given than just sufficient to prevent withering, and the temperature should be kept as near 40° as possible, and every chance taken to render the air about the plants dry. When frost actually does come, no further care than protection from its embraces will then be required. Plants so hardened may stay covered up for weeks, without any light or air, and secure from the slightest injury. Mice constitute the most troublesome enemy in a pit closed for any length of time; but we have, as yet, found nothing better than the recommendation given in back volumes, namely, to take Peas and soak them twenty-four hours in water, then roll in arsenic and sow in a pot, as if in the regular way of seed-sowing. A few pots so prepared should be placed in the pit before permanently closing up. The mice usually make for these pots at their first entrance to the pits. If placed on the soil, they seem to guess your secret, and will not "bite."

Plants in cellars need much the same care as those in pits. Avoid heat and dampness; frequently however, plants suffer in cellars through getting too dry. They should be looked over, at any rate, once a month, and a little water given, if likely to become entirely dry.

COMMUNICATIONS.

FLOWERING OF THE NIGHT-BLOOMING CEREUS.

BY EDWARD E. SALYER.

In reply to a hint on page 279, of September MONTHLY, in regard to flowering of Night-blooming Cereus, I send the following: On the evening of July 20th a friend of mine in this place had a fine one in flower, which created quite a sensation; and on the evening of August 29th a very fine one flowered on Putnam avenue, Brooklyn, N. Y. On Sunday night, August 31st, was exhibited on the grounds of Mr. E. Towne, Walnut street, East Orange, N. J., the most beautiful one I ever saw. It was indeed "a sight never to be forgotten." A finely-trained specimen eight feet high and four feet in diameter, with sixty-five fully-expanded blooms; literally covered with its gorgeous, waxy, amber-colored blossoms. Should this be of any interest to you, make what use of it you please.

Avondale, N. J.

[Were the plants flowering a month apart of the same species? Was it the long, rope-like-stemmed species, C. grandiflorus? Or some of the flat-stemmed kind?—Ed. G. M.]

PHALÆNOPSIS ESMERALDA.

BY EPIPHYTE.

About this time last year I bought at one of Young & Elliott's sales about a half dozen of the above named orchid without much information about it. They were small plants with three or four leaves each, about three inches long and one inch wide. I put each one in a small basket of cedar and hung them about two feet from the glass in my warmest house, in which place they have remained until they came into bloom. Soon after putting them in baskets they began to grow finely and send out thick roots, which they do more freely than any orchid I have seen. They grew all winter and in May sent up flower spikes very freely, nearly every plant one or two spikes. They have now been in bloom nearly two months, and I think from the number of buds still to open that the same spike will be in bloom three months. The flowers are small, and as the petals reflex it makes them appear smaller. The flowers are over one inch in diameter. The spike is upright and there are always eight or ten blooms open. The petals are from pure white to light purple. Some have a lip with white center lobe, and side

lobes light fawn color. Though this is not to be compared to P. aurabilis, P. grandiflora and others, it is a desirable little orchid when its easy cultivation, free flowering and length of time in bloom are considered. *Baltimore, Md.*

ARDISIA CRENULATA.

BY CHARLES E. PARNELL.

The crenulate-leaved Ardisia, Ardisia crenulata, is a very handsome evergreen stove or warm greenhouse plant, growing from two to six feet in height, and belonging to the natural order Myrsinaceæ. It is a native of the West Indies, from whence it was introduced as early as 1809. It is a plant much esteemed for the beauty of its dark green lanceolate ovate crenate leaves and pale pinkish white colored star-like flowers, which are freely produced in terminal panicles early in the spring, and which are succeeded by small coral-like, round, vermilion-red berries, that remain on the plant for a long time; indeed, if the plant is properly cared for, they will remain on the plant until others are produced the following year, thus rendering it a very desirable and useful ornamental plant, suitable alike for the decoration of the greenhouse or window garden. The Ardisia is a plant easily cultivated, doing best in a compost of two-thirds well-rotted sods, one-third well-decayed manure, with the addition of a little sharp sand; mix thoroughly, and use the compost rough. In potting, use porous or soft-baked pots, and let them be proportionate to the size of the plants. Be careful to drain them well, and give an average winter temperature of 55° and a light, sunny situation. They should be given liquid manure-water once a week, and sponge the leaves off occasionally, to remove dust, dirt, etc., as well as to guard against insect pests. They do best when planted out during the summer season in a deep, well-enriched border, in a partially-shaded situation, care being taken to keep them well supplied with water. They should be carefully taken up and potted early in September.

The plants are occasionally troubled by the scale and mealy bug. So, to guard against these pests, it is advisable to thoroughly sponge the leaves and stems several times during the year with clean water, in which a little whale oil soap has been dissolved.

Propagation is effected by seeds which should be sown as soon as possible after being gathered; but, as they have a hard covering, it often takes them a considerable time to vegetate; then again, they generally germinate unevenly, but if the soil is kept moist and a little care exercised, all will germinate after awhile. Sow the seed thinly in a well-drained pot or pan of light, loamy soil, and place it in a warm, moist situation, giving if possible a little bottom heat, and as soon as all the young plants are well up and strong enough to handle, pot off into three-inch pots. Keep them in as warm and moist a situation as possible, repot as often as necessary, and use every means to induce as rapid a growth as possible, until they attain the desired size. The plants, if well cared for, will fruit when a year old.

The generic name is derived from "Ardis," a spear head, in reference to the sharp pointed divisions of the flower; and the specific, in allusion to the finer indentations on the margins of the glossy, dark green leaves. *Queens, N. Y.*

[We cannot resist adding a word of praise of this plant. It is one of the best that we know of for rooms, and if a hundred thousand plants were in as many households, what an untold wealth of pleasure would not flow from them.—Ed. G. M.]

ORCHID NOTES.

BY EPIPHYTE.

The question has often been asked me, "Are orchids difficult to cultivate?" With over a dozen years' experience my answer has been, that as far as manual labor was concerned the cultivation was easy, but that I knew of no class of plants that require more knowledge and attention. When orchids from the dry table land of Mexico are grown with others from Central America and India and other places in north latitude; and in the same house South American species from directly under the Equator to latitude 27° south, also others from Australia and South Africa, are hanging side by side; and when added to this diversity of latitude, is joined the fact that orchids are found growing in the same country at the base of mountains where the thermometer has 70° for a minimum, to the region of snows, a faint idea can be formed of the information required to grow a mixed collection of these beautiful plants. It is also possible to grow orchids finely and still not bloom them. I have at the present time a plant of Epidendrum rhizophorum, which I have grown for six years and not the least sign of a flower. I have tried it wet and dry, shade and sun, cold and hot; it grows but will not bloom. I have some fine plants of Cattleya Bootbiana which grow finely but have

never bloomed. Of course I can see where they bloomed in their own homes, and it may be that by accident I may discover the right treatment and bloom them. Orchids from the same locality show great difference both in time of growth and bloom. This is very apparent in the Cattleyas and Lælias from South Brazil. Cattleya Harrisoni, C. bicolor, C. Loddigesii commence to grow in April and May and bloom in August. C. guttata, C. Leopoldii commence to grow a little later and bloom in September and October. The beautiful and rare C. amethystoglossa grows through the summer months, makes its flower spathe in the fall, but does not bloom until April or May. The varieties of C. intermedia make a spring growth and with it bloom from May to July; they then make another growth, which rarely blooms. The beautiful C. Acklandiæ will keep growing and blooming from spring until fall, as will also C. Forbesii. These all belong to the terete or slender bulb species. The true C. labiata blooms in October and November, but the variety C.Warnerii in June and July. The same difference occurs with the broad leaf Lælias. L. Perrinii and L. elegans with its varieties commence to grow in June and bloom in September and October, and remain dormant until the next year. But L. crispa and L. purpurata bloom from July to September and then grow through the fall months. The beautiful L. flava, L. cinnabarina, L. Rupestris and L. harpophylla are growing from July until October, and will bloom in the early spring. Now as it is well known that the same orchid requires different treatment at different times, and as the growing and resting season of orchids from the same place vary, it can easily be seen that considerable care is required to give the various species the separate treatment they need. Many orchids with bulbs do not require much moisture when they have perfected their bulbs, especially Cattleyas and Lælias.

I have a letter from a collector in Mexico, in which he states that Lælia majalis and L. autumnalis, which grow in a dry and moderately cool situation, invariably die when taken down to grow near Vera Cruz, where L. anceps grows finely. It is quite easy to grow some orchids with but little trouble, and among them some fine species; but at the same time it is because by chance their wants have been supplied, and any that fail to do well are not bought again. Orchids are peculiarly flowers for amateurs, and need a loving eye to watch over them. It may be at times necessary to see that the long spike of an orchid has room to grow, or help a Stanhopea or Acineta to get a clear way for its bloom through the bottom of a basket. Sometimes, when from overshade, an orchid is making a weak, flaccid growth, it has to be put near the light to harden and stiffen the growth. I most always have a small brush in my pocket, and if I detect any scale, mealy bug or yellow fly, I make it my business to destroy them then and there. There is one satisfaction with a collection of orchids: they are very clean to handle, and require but little potting and change. I have plants growing for six years on cedar, locust, or chestnut blocks, and they will no doubt grow on the same for six years longer.

[Many persons must have noted that orchids, when received from their native places or from foreign countries, require for some little time, treatment quite different from that which suits established plants. Our correspondent has had much experience with these introductions, and we believe that a few lines from him, on this topic, would be valuable to many.—Ed. G. M.]

EDITORIAL NOTES.

To Kill Mosquitos.—A traveler says that a room full of mosquitos can be easily killed, by first closing windows and doors, and then burning a tablespoonful of buhach on a plate.

Growing Plants in Moss.—Dumesnil tells a French magazine that his moss is so powerful it must not come in contact with the roots at first, but some less powerful material must go between the roots and the moss when potted. Another fertilized moss is advertised in London as superior to the Dumesnil. We have not heard much of the moss recently. Fertilized moss has many merits, especially as a top dressing. The only disadvantage of a top dressing of moss is, that it prevents the inexperienced from seeing when the plant needs water.

Roses in Winter.—Usually what writers in daily papers say about horticultural topics is of the silliest character. But a remarkably intelligently written paper on Roses recently appeared in the New York *Evening Post*, from which we take the following, and which we are sure will be appreciated by our readers:

"Winter is yet some months distant, but the necessary preparation for winter flower-buds must be made within the next thirty days, or results will be unsatisfactory. Every year improvements are

put in practice in greenhouse operations; by experiments discoveries are made which save labor and expense, and by which better stock is grown. The cultivation of roses has become so extensive in districts around this city that it would be remarkable if improvements in rose culture did not go hand in hand with the large increase of labor in this direction. By the florists roses are nearly altogether grown for winter buds on shallow benches in the greenhouse. Latterly it has been found that the depth of soil on these benches can be reduced to even less than four inches with the best results. Formerly eight and even twelve inches' depth was used, causing great labor and expense. This soil, which is composed of about equal parts of rotted sod and rotted stable manure, is placed on these benches, which are made so as to leave a space of half-an-inch between the boards, to admit of perfect drainage. The distance apart between the plants should be from twelve to fifteen inches, according to their size.

"The greenhouse best suited for rose-growing is what is known as a 'two-thirds span,' that is, one-third sloping to the north and two-thirds to the south, the roof at an angle of about forty degrees. The top of the benches wherein the roses are planted should in no case be less than two feet from the glass. The plants used are usually about eighteen inches in height, and are grown in five or six-inch pots. The time of planting is any time during the month of August; and the sooner now, the better.

"The variety of monthly roses best adapted for winter is limited. A great mistake is frequently made by the inexperienced in using too many kinds. The roses most likely to be valuable the coming winter are here named in the order of their excellence: Sunset, a rich orange color, shaded with crimson, possessing the true 'tea fragrance;' Perle des Jardins, deep yellow; Niphetos, large pure white; Catherine Mermet, a shell pink; Marshal Robert, pale canary yellow; Southern Belle, a real blush rose; Souvenir d' Ami, delicate pink; Bon Silene, very deep pink, with delightful fragrance; Mde. Cusin, silvery salmon tinted; and Douglas, a dark crimson. There are hundreds of others offered by growers, but when the limit of this list is passed the results will not be so satisfactory. Nearly all the colors known in roses are here represented.

"Besides growing roses on the benches for winter they are also extensively grown in pots. For house culture or for those having only small greenhouses and a mixed variety of plants, the pot-growing plan is the best. A rose grown in six-inch pots, when properly treated, will give about two dozen good buds during the winter months, some more, some less, according to kinds. Amateurs frequently have more difficulty in making roses do well in winter than other plants. This is mainly caused by the too common mistake of keeping the temperature too high; it should range at night from fifty-five to sixty-five degrees—sixty being the best mean temperature—and during the day from ten to fifteen degrees higher.

"The extent to which roses are being grown this season in the vicinity of the metropolis, both by private gentlemen for their own use and by florists for commercial purposes, is something extraordinary. There are few persons who keep fully appointed greenhouses that have not now a rose-house added, and it is believed that not less than two hundred thousand dollars will be expended this summer in new glass-houses by the florists of this locality alone. A new greenhouse on Jersey City heights was seen yesterday, over three hundred feet long and twenty feet wide, erected exclusively to grow the new tea rose 'Sunset.' This house, which is mainly of glass and iron, will cost when completed six thousand dollars."

NEW OR RARE PLANTS.

HYBRID ANTHURIUMS (see illustration).—The hybridizers are adding faster to the list of good new plants than collectors in native places. Two interesting hybrid aroids are among the latest acquisitions, of which we have the following account from Messrs. Veitch, of Chelsea, London:

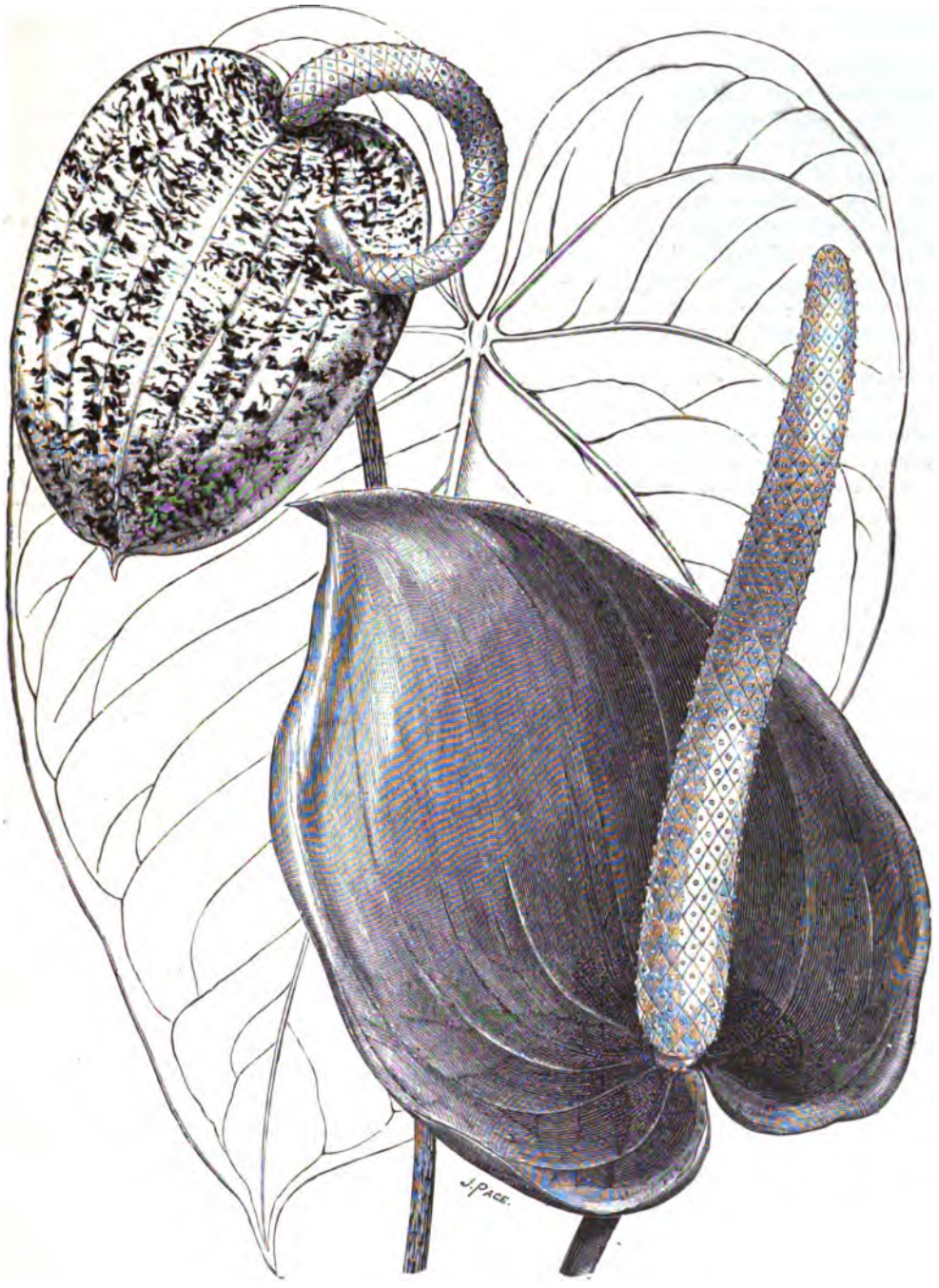
Anthurium Rothschildianum.—This beautiful hybrid is also one of M. Bergman's acquisitions; it is the result of crossing a fine red-spathed variety of A. Scherzerianum with the white-spathed variety, A. Scherzerianum album.

The progeny exhibits striking intermediate characters; the ground color of the spathe is creamy white profusely blotched and spotted with coral-red, thereby rendering it very distinct and effective. As regards size, the spathe is equal to that of many of the best varieties of A. Scherzerianum. The spadix is yellow and singularly twisted, as in the white-spathed variety.

Anthurium Ferrièrense.—A splendid hybrid obtained from A. ornatum and A. Andreanum by M. Bergman, gardener to Baron Alphonse de Rothschild, at Ferrières-en-Brie, near Paris, from whom we have acquired the stock.

The plant has the bold habit and broad foliage of A. ornatum. The slender, erect footstalks of the leaves support a fine bright green heart-shaped expansion, fully 12 inches long and 6 inches broad.

The scape is stout and erect, attaining a length of 24 to 30 inches. The spathe, which is remarkably showy and attractive, is of cordate form, 5 to 6 inches across, of a bright rosy carmine color, without any of the reticulated corrugations characteristic of A. Andreanum. The spadix is about 5 inches long, ivory-white to two-thirds of its length, with the upper third fawn-yellow.



Anthurium Rothschildianum. **Anthurium Ferrierense.**

SCRAPS AND QUERIES.

CUTTINGS OF LEMON VERBENA.—"H. W.," Montreal, Can., writes: "I should feel greatly obliged, if you would please inform me what is the best time and manner to strike cuttings of Lemon Verbena plants."

[In this part of the world, in July or August,

while the young growth is yet but half mature.—Ed. G. M.]

PRESSURE OF HOT WATER.—"Ignorance," Toledo, Ohio, says: "Supposing I have a saddle water boiler, and about one thousand feet four-inch pipe, how can I get this under pressure? I have often heard of greater heat being obtained that way. How is it done? Will some correspondent please respond in the September number?"

[As we have frequently stated, matter for the GARDENERS' MONTHLY reaching us but a few days before publication, cannot possibly get insertion in the "coming number."—Ed. G. M.]

ORCHID GROWING.—A Baltimore correspondent says: "The different kinds of Orchids require such special treatment, that the papers relating to them are always read with interest," and, he adds, "why do not other Orchid growers give us the benefit of their experience."

FRUITING OF CAROLINEA ALBA.—Mr. Gurney, Gardener at the Missouri Botanic Gardens, writes: "I send you by mail to-day, fruit and leaves of Carolinea alba. In a week from this the fruit will open. The seeds are easy to grow. Our plant has on it a very full crop of fruit."

[This remarkably handsome plant has many admirers for its leaves. We have never seen the fruit before, and offer our thanks for the pleasure afforded.—Ed. G. M.]

SEEDLING GERANIUM.—"C. N. W.," Ithaca, N. Y., says "I have this day sent you some blooms of my Seedling Geranium. The plant is a fac simile of Crystal Palace Gem, but covered with pink flowers. By giving me your opinion as to its value, &c., you will oblige."

[The light green and dark green shades in the same leaf in connection with the color of the flower, make this a very desirable variety for some kinds of flower gardening. It ought to be a particularly good variety for vases.—Ed. G. M.]

FLOWERING OF A NIGHT BLOOMING CEREUS.—"F. C. G.," Verona, N. J., says: "In Sept. No. of GARDENERS' MONTHLY, I read of Night Blooming Cereus blooming June 21st, &c. I have two plants, three and four years old, that bloomed Sept. 1st and 2d, three buds the 1st, and one the 2d. On the 2d of Sept. I saw a plant, judging from appearances, that had bloomed the night before. Thought it might be of interest to the GARDENERS' MONTHLY."

[This note shows the caution of Mr. Falconer, about the many kinds which are called Night Blooming Cereuses, to be well timed, for we suppose the original "Night Blooming Cactus" of old authors, and which we had in mind, would not be in flower so late as 2d of September. The commonest of the night bloomers is the Cereus latifrons, with broad, flat and rather thin "fronds," and this is perhaps the species referred to here.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

THE VANILLA PLANT.

BY DR. L. D. MORSE.

The item in the September number of the GARDENERS' MONTHLY, page 281, on, Vanilla Beans, suggests an interesting subject for inquiry and experiment. The Vanilla being, as stated, a native of Mexico, but which extends north to the borders of the United States, why may it not be successfully cultivated in portions of the Gulf States, and especially in the southern counties and warm interior valleys of California? At least, it may reasonably be inferred that it might be successfully cultivated under glass in plain, inexpensive structures. While Vanilla beans are worth $9.00 a pound, as now quoted, it seems as though a very large profit might be realized even with such cultivation.

Vanilla plants have been made to produce beans or fruit quite successfully by artificial fertilization, or without the aid of bees or insects. A very interesting article on the Vanilla Plant was published in the September number, 1879, of the *Popular Science Monthly*, translated from "La Nature" and written by J. Poisson, assistant Naturalist in the Paris Museum of Natural History. In it the right of priority in discovering the artificial fertili-

zation of the Vanilla is somewhat discussed, and the statement is made that nothing appears to have come out of the discoveries, until the same was made by a young slave named Edmond Albius, presumably in the Isle of Bourbon. "Albius had noticed how his master, who had considerable acquaintance with natural history, used to produce hybrids by cross-fertilization of the various flowers in his garden. Having made like experiments himself, the young slave observed that on touching with a spine of palm the flowers of the Vanilla, two little yellow bodies contained within changed position, and that fertilization resulted from the contact. A new branch of commerce was henceforth created, and Vanilla Beans, previously very dear, were quickly much lowered in price."

"These flowers last for only one day, and fructification, in order to be successful, should take place in the morning. The instrument used for this operation is a pointed piece of bamboo. A skilled man can fecundate as many as one thousand flowers in a morning."

The attraction of the stigmas of these flowers for the pollen offered them has been noticed by several experimenters. One says, "After the sun had made pretty warm the greenhouse in which the plant was suspended, then, provided the anthers were not firmly attached to the top of the pins on which they were borne, they would become detached from it on being brought within a certain distance of the stigma, and being strongly attracted, would shoot like an arrow into the cavity."

Statements were made in some of the papers a few years ago, that a variety of Vanilla was cultivated in Florida. If such is the case, it would be very interesting to know what variety and with what success. The extension of any industry, or the introduction of new industries in any portion of our country, especially such as relate to the cultivation and productions of the soil, are matters of prime national importance, as well as of intense interest, enjoyment and profit to the individuals connected therewith. *San Mateo, Cal.*

APPLES ON HAWTHORN.

BY WM. A. NOURSE.

In October number of GARDENERS' MONTHLY you ask if any have experimented with grafting apples or pears on Crab-apple or Hawthorn. I would say that about twenty or twenty-five years ago I transplanted some White Thorn from a pasture into my garden and grafted them. One of them I grafted with Bartlett pear. It bore regularly for several years, but never bore a pear that was fit to eat. Of course I dug it up and destroyed it. Others were grafted with very choice varieties, but with the same result. The stock seemed to spoil the quality of the fruit. On Standard or Quince stock I was then in the habit of getting larger and better pears than I ever found in New York or Boston market. I was much disappointed in my experiment with the Thorn stock. *Moline, Ills.*

HARDY GRAPES IN EASTERN MASSACHUSETTS.

BY W. H. W.

So far as my observation has extended (which I must confess is not very far) this has been an exceptionally unfavorable year for out-door grapes. We have had so much rain and so much cool weather for the season that not only has the fruit not ripened well, but mildew and rot have been unusually prevalent. Such a season emphasizes the importance of good and nutritious culture, that the vines may have such vigor of constitution and of growth as to be able to withstand such attacks of disease as soon vanquish those that have been enfeebled by neglect and starvation. I have seen some striking illustrations of this lesson within a few weeks. Some vines that have been left to forage for their food as best they could in the absence of all attempts to supply their wants, have uttered their protest against such treatment by lifting up diseased foliage and scanty and worthless fruit. While other vines of the same variety and in naturally poorer soil, have expressed their thanks for the generous supply of food which had been given them, in vigorous growth and splendid clusters. Those who desire fine fruit and an abundance of it, need to remember, as many do not, that we can no more reasonably expect our vines to thrive without food than our children or our cattle.

But I took my pen to offer a slight contribution to the general information in regard to the conduct and promise of some of the newer varieties of out-door grapes. My knowledge is based simply upon experience here in my own grounds, and may of course be quite misleading if applied to different latitude or soil. The soil here is quite light and porous, but has been well enriched with ground bone and hard-wood ashes. The culture has been clean and careful.

1. El Dorado. This has made a very vigorous,

almost rampant growth. It has shown no disease in leaf or berry. But unless it bears more abundantly than it has this year with me it is unworthy of cultivation. A large vigorous vine that should have given at least ten pounds of fruit had the effrontery to offer me for all my care not more than half a pound. But what there is, is very fine, tender, crisp and high-flavored.

2. Prentiss. I have two vines of this variety, which, notwithstanding all my petting and coaxing, seem hardly able to decide whether "life is worth living," so far at least as they are concerned. One of them has been planted for two years in the border of my cold grapery where it gets such nourishment as ought to have stimulated it to do its best, and yet it is still a puny little invalid that seems utterly exhausted in the attempt to bear two little bunches that together would not weigh half a pound. I shall give it one year more of probation; if it does no better I shall decide for it that its room is more valuable than its company.

3. Lady Washington. This is a magnificent grape for some other grounds than mine. It is very vigorous in growth, quite healthy in foliage, and bears an abundance of most splendid clusters. Several of mine will weigh, I think, more than a pound each. And the quality too is superb. But, Oh! it is so tardy in ripening. Here it is October 4th as I write, and not a single one of these beautiful bunches is sufficiently near ripeness to give any promise of being eatable by any one more fastidious than Jack Frost. In the latitude of Virginia or the Carolinas this must prove one of the finest out-door grapes that can be grown. But here in New England I fear it must be sorrowfully abandoned.

4. Jefferson. This seems to me to take the palm for quality over every other hardy grape I know. I prefer it to Black Hamburg, as it has a much more pronounced and spicy character, while it has no objectionable toughness of skin or pulp. It is a good and healthy grower, and bears, with reasonable abundance, good sized and very heavy clusters. But I am disappointed in its time of ripening. None of my bunches are yet fully matured, while some seem not more than half ripe. I had hoped this would fill the place which we once thought the Iona would take, but which seems still vacant, that of a first quality grape ripening sufficiently early to answer for New England. That throne seems still waiting for the coming monarch. I wish he would hasten his steps.

5. Brighton. On the whole I should place this variety at the head of the list for general worthiness. In quality very fine and sweet, in vigor of growth everything that could be desired, carrying healthy foliage and abundant fruit and ripening its large clusters (one of which I have just found to weigh very nearly twenty ounces) as early as any variety than can for a moment compare with it. It seems to me to stand at the very head of out-door grapes yet tested. If any one wishes to know what variety to plant for family use, my experience answers at once, Brighton. I know of no other that I think will be so sure to give satisfaction for quality and quantity of fruit and vigor and healthfulness of vine, while at the same time the fruit ripens early enough for Eastern Massachusetts.

But I am asking too much of your valuable space and must stop, though not yet half through with my list. *Malden, Mass.*

EDITORIAL NOTES.

EXTENT OF LAND IN FRUIT.—Few people have any idea of the enormous extent of land under fruit culture in the United States. A correspondent from Barnesville, Ohio, tells us that about 6,000 bushels of Raspberries were sent from that station last season, and, as we suppose, seventy-five bushels to the acre would be a good crop, this gives about eighty acres. It seems almost incredible, but suppose it must be so.

CURCULIO AND THE PLUM.—It need not be a grey-headed person to tell of the almost total absence of plums in our time. It is, indeed, but a few years ago when the young people did not know what a garden plum was. The curculio was master of the field, and it was useless for the curious inquirer to even look through the fence. Now the enemy is at bay, and the good gardener has possession of a good portion of the ground Plums are everywhere. Thousands of bushels are annually sold in the Philadelphia markets. The little pest is simply shook off the trees on to sheets, and then swept away. The man who first invented shaking should not be forgotten, although here, as in all other things, the original idea has been vastly improved on. We suppose Dr. Hull, of Alton, Ills., was the one who first put shaking to profitable use, though we are not sure he was the first to practice the plan. But the jar, by his barrow plan, struck the tree so low down, that when the tree became large, it had little effect. Then came the mallet plan, by which the tree could be struck at arm's reach; but here again the tough

old tree did but laugh at the effort which brought the younger one to terms. Then the Geneva folks invented the long-legged crutch, by which all the leading branches could be reached and jarred, and then came the glorious crops of plums.

All this is going through our mind while a huge basket of green gages—the best kind of green gage, Reine Claude—from S. D. Willard, is on the table before us. Beauties they are, over an ounce in weight—five of them weighing six ounces—and so sweet that they would perhaps pay to make grape sugar when other things give out. When, the few years ago we have referred to, it was thought we should have to let the curculio reign supreme, we looked to the woods and fence rows for a "curculio proof variety" which would at least bear the name—who would have thought we should so soon be able to get the good old plum of our daddies back again?

STRAWBERRIES RUNNING OUT.—The strawberry in its natural conditions is a native of high northern latitudes, or high elevations in southern ones. Hence, in elevations near the sea, in warm climates, the low vital power caused by continuous high temperature invites fungus attacks, and the variety soon "runs out." Hence in the South, those who would keep up a supply of healthy plants set out some in cool, damp places, and in this manner have plants in perfect health for new plantations where the garden beds give out.

STRAWBERRY, BIG BOB.—Mr. Purdy says in the *Fruit Recorder* that the originator of this variety was an ardent admirer of Colonel Robert Ingersoll, the famous lecturer, and named his strawberry from his familiar expression regarding his favorite man.

THE EVERGREEN BLACKBERRY, is said by an Oregon fruit grower to have been introduced into that region from the South Sea Islands, and to have berries the size of the Lawton. We do not know anything about it.

THE GARRETSON STRAWBERRY.—This is brought out by the well-known Long Island seedsman of this name, who claims for it, that it is a pistillate, stands drouth, bears abundantly and remains in "picking condition fully three weeks."

TO KILL SCALE.—Where one is afraid pure linseed oil may not be furnished, the following prescription furnished by the Entomological department of the Department of Agriculture may be employed:

Kerosene	2 gallons
Common Soap or whale-oil soap	½ pound
Water	1 gallon

Heat the solution of soap and add it boiling hot to the kerosene. Churn the mixture by means of a force-pump and spray-nozzle for five or ten minutes. The emulsion, if perfect, forms a cream which thickens on cooling. Dilute one part, before using, with nine parts of cold water. The percentage of oil can be increased considerably without danger to the plant, and a stronger emulsion may be required in coping with some of the Aspidiotus scales.

CANNA ROOTS FOR FOOD.—In Venezuela the Canna is very extensively grown for its tuberous roots. The species appears to be Canna edulis.

A LARGE APPLE TREE.—H. C. Hovey gives to the *Scientific American* the following figures relating to an apple tree about 175 years old at Hotchkiss, Conn.:

Circumference of the trunk, near the ground	15 ft. 3 in.
" " " 3 ft. from ground	13 ft. 9 in.
" " " at the forks	16 ft. 2 in.
" " 2 main branches	10 ft. 4 in., 8 ft. 8 in.
" of 9 smaller branches, from	4 to 6 ft. each.
Height of tree	60 feet.
Diameter of tree top	104 feet.

SCRAPS AND QUERIES.

TROUBLE WITH FRUIT TREES.—"F. A. M.," Pottsville, Pa., writes: "I live in the country on account of delicate health, and among other things I have been giving much time and study to the cultivation of fruit. I have planted an orchard of nearly 300 pear trees, of fifteen leading varieties. This fall my trees are dying off in a very strange way. The leaves turn black, the trunks become black spotted and die. Some trees which were green and fresh in the morning were black at night. I have also lost two apricots, several Green and Imperial gages in the same way. Is this blight? Trees planted four and five years appear most affected. The 'Bartletts' and 'Clapp's Favorite' appear the hardiest. The trunks of many of my trees are very rough and scaly. I have given my trees great attention; have washed every spring and fall with whale oil soap and then whitewashed; have sprayed poisonous liquids among the branches to kill insects; have dug up the trees carefully spring and fall; given them manure; have applied carbonate of lime, and also fresh caustic lime, and I am now at a loss to know what to do. I also put around my trees iron filings. I have read all the papers and can get no satisfactory information. I have thought of applying salt and coal ashes. Would not these (or the salt alone) have a tendency to correct blight? If thee

can tell me what to do I shall be greatly obliged. I feel greatly annoyed to see my beautiful five-year old trees dying off. Thee may be able to appreciate the situation. Could thee also recommend any work that would help me, or give me general information upon the cultivation of fruit trees?"

[This is one of those cases such as a physician would want to see before prescribing for the disease or disorder. On the face of it we should be inclined to say that the trees were injured by cultivation; that is to say, the extraordinary good care which has been given to the trees has really been very bad care.

It is more than likely that if the orchard had been sown with grass as soon as the trees were fairly established, borers kept out of the trees, and a good surface dressing of manure given every other year to the trees, this cry for help would not have come to us. It is too late to put a half sick tree into grass with any hope of recovery.—Ed. G. M.]

A Rocky Mountain Plum.—A correspondent from Moorton, Delaware, sends us some fruit and branches of a plum said to be a native of the Rocky Mountains, with a very circumstantial account of its discovery and removal to the East.

The plum itself is a very good fruit, but there has been some mistake about its being found wild in the Rocky Mountains. It is of the European race, and whatever merits it may have it will have to be compared with other varieties of that class.

Moore's Diamond Grape.—A Rochester correspondent sends us a sample of this—one of the hybrids raised some years ago by Jacob Moore. The bunch weighed five ounces, and though the quality was very good, we had our doubts about its being superior in any considerable degree to the many good white varieties now known. But when we saw the date of the letter, Sept. 16, which is very early for Rochester, and remember that we have no very early white grape, we are inclined to think this will prove a valuable addition to a list already large.

Japanese Persimmons from Norfolk, Va.—Larger and larger! Only think of Persimmons weighing each over half a pound! Yet this is the story the scales tell us about some specimens sent us by Mr. Reynolds, of Norfolk, Va.

This locality seems to be specially favored as a home for the Japanese Pers mmon, and we shall probably hear of immense orchards there, as we hear of the Orange orchards of Florida.

We suppose there must be a ready sale for Japan Persimmons. The man who first named the tree Diospyros—The Pear of the Gods—"builded better than he knew." It is a delightful fruit.

Cultivating Trees in Grass.—"F. B.," Cadiz, O., writes: "I note that you recommend growing fruit trees in grass, and giving them sometimes a top dressing of manure or fertilizing material, so that both the grass and the trees may have something to eat. What are we poor fellows to do, who have no fertilizers to top-dress with?"

[Do not have grass; or else, do not have the trees. When a tree is half starving, it would be not even horse sense to get grass to share the "half-loaf" with the tree.—Ed. G. M.]

Fertilizers for Forced Vegetables.—"J. G.," Brookfield, Mo., desires to know the best fertilizer on benches in a forcing house for vegetables, after the earth has been already on the benches in use two or three years. In this part of the world we think the effort would be to wholly change the earth. The next best would be, to use cow manure at least one year old. Outside of this, whatever would be most convenient would probably decide the question. Bone dust and guano are in extensive use.

Woodcock Grape.—The originator claims for this extra earliness, coloring before the Concord begins to change. It is an excellent keeper, never drops from the stem, and is of first-class favor.

It is certainly a very pretty bunch, and berry, evidently of pure Labrusca parentage. The honeyed sweetness of the flesh will be grateful to most palates. Its defects are, a very thick skin, over-much pulp, and astringency if the skin be sucked too intensely.

Pear from Brookfield, Mo.—"J. G." sends a pear for name, which has been growing there six years, and fruited this year for the first time. It is of enormous size—say of the form, but double the size of an ordinary Bartlett pear—russetty, and with a dark brown cheek. A very pleasant aromatic, sub-acid, juicy fruit, but we do not feel sufficiently satisfied about its identity to hazard a name.

Peach Root Aphis.—Mr. Lorin Blodget sends the following note: "Mr. Charles Black's letter fully confirms my idea of the bad character of the Black root Aphis. It has killed every seedling peach in my grounds, and works away at the roots yet. But Mr. Black does not give us a scientific distinction or name, nor does he give dates for its

first appearance. So we cannot yet say whether Prof. Lintner is right in tracing it to France. It eats the bark, and is much more persistent than any other Aphis.

"I have no report from the Agricultural Department at Washington, and no reply to my inquiry of Dr. Horn, of the Academy of Natural Sciences."

FINE SECKEL PEARS.—T. T. Southwick, Rochester, September 26th, writes: "I gathered to-day from one limb, less than a foot in length, six Seckel Pears weighing 33¼ ounces and measuring the small way as follows: 8¼, 8¼, 8¼, 8¼, 8⅛, 7⅞. The two largest weighed full 6 ounces each. Six more, from another limb, weighed 33 ounces.

"I cannot remember having seen Seckels so large, though they may be nothing notably large. If you so consider them to be, you can give the facts place."

THE LINDLEY GRAPE.—Mr. Blodget writes: "When I left my house this morning I did not expect to send you the hastily-collected grapes I have just put in the express, but I opened them at Mr. Marot's, and, at his suggestion, send them.

"The most of them are Rogers' No. 9 (Lindley), and part of a crop of 3,000 bunches grown on one vine this year—half more than in 1883.

"I think them the best of their class—the best grape in cultivation, in fact. These have been fairly ripe since August 20th. I gathered the first on August 15th. There is no waste, rotting, or loss of any kind, except a few hybrids.

"The large black grapes are Rogers' No. 19. There are two bunches of Concords and two of Dianas—old ones, taken from my residence, 246 South Eighth street, when I removed to Broad street, in 1865.

"I cannot grow most of the Northern sorts, nor the Isabellas or Catawbas. I have seven faithful sorts, but above all others in value is this Rogers' No. 9.

"All these I now send were cut from under or pendent twigs about thirty feet east of the main stem; the portion which blew down and caused my broken arm on the 1st of July. Larger grapes and finer bunches hang now on the western extension 110 feet from these, or 80 feet westward (these are eastward), and on the fourth story of the main dwelling."

[We had no idea the Lindley was so very fine a grape. We have thought very few grapes of modern times equal to an old-fashioned, healthy and well-ripened Catawba, but we found that good character here. It was much better than the other kinds named, sent with them.—Ed. G. M.]

INSECTS INJURIOUS TO FRUITS IN NORTH CAROLINA.—"C. W. W.," Wilson, N. C., writes: "I send you to-day a small basket of apples and peaches. The apples are the Shockley, Romanite and Bar Seedling, three of the hardiest varieties of winter apples in this section, and the peaches are the Harris Winter, Nix Late, October Cling and Scott's October Cling. You will observe that all the fruit is ravaged by insects, and it is worthless and ripening prematurely. And this fruit is a fair sample of much the larger proportion of the fruit throughout eastern Carolina, and I have visited a number of orchards in middle and western Carolina, and found the fruit in this condition.

"Now, the people want to know what is the matter with the fruit and the trees. I tell them it is the work of the curculio—both the plum and the apple curculio. Some of my correspondents deny that there is an apple curculio. But in July last I visited the Entomological Department at Washington, D. C., and the entomologists confirmed my opinion that there is an apple curculio. You will see but little sign of the codlin moth on these apples.

"In the year 1882 I owned the orchard from which I gathered this fruit. I had been troubled by the curculio and the codlin moth, as well; but that year (1882) I used a preparation or compound I now call "Victory," on the entire orchard—apple, peach and plum. I used it broadcast under the trees just after blooms appeared, and plowed the ground and raked the surface under the trees nicely, so as to mix the compound with the soil. To my surprise I was not troubled at all by the curculio or codlin moth or borer. My fruit was abundant, perfect, no sign of codlin moth or curculio. The curculio is our greatest trouble here. I claim that my discovery is a specific remedy for this great pest. I sold this orchard to pay a debt, in 1883.

"I, however, made some use of it again this year, which confirms my faith in its efficacy. I shipped fancy peaches to A. S. Cook & Co., New York City, in July, 1882, which sold at $8 to $10—carrier or basket crate—holding a small fraction over a bushel.

"Our people need help in this matter. Am I correct in my statements?"

[The poor fruit sent seemed to have been the point of attack of a number of species of insects, and their development was of course arrested

thereby. But those who know the manner in which insects propagate, cannot admit that any specific application of a fertilizer to the roots would do anything to preserve the fruit from the ravages of insects. Fertilizers aid nutrition, and in this way assist a tree in its struggle with injury from insect attacks or the attacks of disease from any other cause, and we should attribute the advantage claimed for the fertilizer to be due to this nutritive influence. We suppose any fertilizer would have the same effect.—Ed. G. M.]

LOUISA PLUM.—Mr. Samuel Miller, Bluffton, Mo., writes: "If nothing happens to prevent, I intend mailing you a box—or rather a tin can—with some Louisa Plums, a variety which I do not think ever gets East. It bears well, regularly, and always carries a fair crop, despite the curculio. It comes after the Wild Goose is past, and lasts about a month. Of its size, appearance and quality, you can judge for yourself; and if you at any time desire buds or grafts, you will be welcome to them. I have two trees. One bore about one bushel the other at least three bushels, this year.

[The Plums did not come to hand. But we suppose, now that the ordinary Garden Plum may be so easily obtained, the race of native Plums will have to be very much more improved in quality than they have been, to compete with it.—Ed. G. M.]

FORESTRY.

EDITORIAL NOTES.

FORESTS AND RAINFALL.—The *Country Gentleman* says: "This opinion appears to have been adopted in the first place by some one who made a single observation, or else who thought it a handsome theory; and writers, without full examination, have copied it and continue to copy it down to the present time."

The opinion was, we believe, adopted originally by Marsh in a work called "Man and Nature." At least it had little if any standing with intelligent people before that day. We may add that it is particularly gratifying to the Editor of this magazine to find this opinion now so thoroughly exploded as it is. When it was first thought proper to oppose this view in the light of actual facts, he stood almost alone, and, in a literary sense, was the target for unmeasured abuse. The Editor's opposition arose quite as much in the interest of practical forestry, as from the abstract value of every fact in science, for no cause ever prospers that has to be bolstered by unsound argument.

TREES AS LIGHTNING CONDUCTORS.—Electricians in the Old World have come to the conclusion that the greatest protection a building can have is to have a few tall trees planted near it. The branches of a tree are as so many points conducting the electricity by the trunk to the ground; and hence the closer the branches grow to the trunk the better. What are called upright or fastigiate trees are therefore better for this purpose than trees with broad spreading heads. If there is a small pond of water between the tree and the building the protection is as perfect as it can be.

RAINFALL AND FORESTS.—Now we have the *Indian Agriculturist*, which seems to speak as if it were well known in that country, that "the removal of forests has a tendency to increase the rainfall on the area cleared." It, however, thinks that it has not been proved that this "increase always takes place."

Taken in connection with what is offered as "science" on the subject here, it confirms the point we have held from the commencement of the discussion, that there is no relation between the rainfall and the forests, and that in practical forestry it is not worth while to consider the question at all in this connection. All we have to do is to look at it wholly as a matter of timber supply. Will it pay the landholder to plant forests? is the main question. The national question is, as the prosperity of a country depends on a good supply of lumber, how can we make it the interest of the planter to set out forests where it will not pay to do it without national encouragement?

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

THE PALMETTO AND ITS USES.

BY MRS. ELIZABETH L. H. WILLIS.

Among the native growths of Carolina, no tree, perhaps, has been an object of greater interest than the Palmetto, and from the earliest dates of civilization on her shores, it has received distinguished attention from scientists, historians, poets and utilitarians. Marking, as it does, the confines or border lands of the tropic region, and belonging to the great family of Palms—than whose genera no other tribe has afforded more grace or majesty of style, or whose foliage presents greater variety or elegance of form—it has been invested with a sort of poetic or romantic sentiment, linking it, in some fascinating, mysterious way, with its illustrious kindred species of "Araby the Blest;" with the temples and sacred groves of India; the jungles of the Amazon, whose wonderful vegetable life aroused astonishment even in a Humboldt; with the Cingalese, whose sacred books relative to the religion of Buddha are written on the laminæ of its leaves; and with the clustering, stately columns towering up from oases of the desert, whose graceful, plumy crests furnish grateful, nourishing food, and overshadow the precious, blessed fountains of a thirsty land. How rich in association, how diversified in beauty and usefulness!

Adopted as the emblem of his State, no South Carolinian, whether at home or in distant lands, but remembers with pride this feature of his State's escutcheon. He regards it, from a loyal citizen's point of view, as symbolical of all that is patriotic, noble and chivalrous.

Although the great tribe of Palmaceæ embraces nearly one thousand species, which are widely distributed over the tropical and semi-tropical territory of the earth, with the exception of a few recent discoveries in Southern California, only five are indigenous to the United States, and these are confined to the seaboard of the South Atlantic and Gulf States; contiguity to salt water seeming essential to their existence, as they are not found in the interior far from the coast. Palmetto is the general name for all our native species, which are, the Dwarf Palmetto—Corypha pumila, of Walter and Bartram, and Sabal pumila of Adanson; the Creeping Palmetto—Corypha repens, of Walter and Bartram; Sabal minima, of Nutall; the Saw Palmetto Corypha serrulata, of Bartram; Chamærops, serrulata of Michaux; the Blue Palmetto—Chamærops hystrix, Frazer, and our typical Palmetto —Corypha Palmetto of Walter, and Chamærops p. of Michaux. It is now designated as Sabal palmetto, and the serrulata is also placed in that genus; but we are told that the meaning of the generic name is obscure. May it not pertain to "sabulous," since both species are most commonly found in sandy barrens?

Dr. F. A. Michaux, son of the great botanist, in his travels in this country, speaks of the Sabal Palmetto as the "Cabbage Palm." But Dr. Shlecut, in his Flora Carolinensis, says the true Cabbage Palm is an exotic, the Areca oleracea of the West Indies, whose majestic shafts "rise to the height of from one hundred and seventy to two hundred feet." Our Palmetto attains a height of from twenty-five to fifty feet, and also furnishes a "cabbage," which is esteemed one of the greatest delicacies of the table. This dainty is the terminal bud, or heart, and consists of the thin, white, succulent, embryonic leaves which overlap each other in brittle flakes, sweet to the taste, and having a delicate flavor of almonds. After boiling in soft water until quite tender, it is dressed with olive oil or melted butter, or with a rich, velvety mayonaise, and constitutes a dish which no epicure would scorn. Cut in cross sections of an inch in thickness, or in fancy shapes, or minced for Axjar, and treated with good vinegar and spices, it makes a delicious pickle. But it is an extravagant luxury, and one which, if indulged often and extensively, would soon exterminate the species, as every cabbage taken dooms the tree to die.

Experience has proved that Palmetto is the most durable of all timber, under water being almost indestructible, and that it is not subject to the inroads of the teredo navalis, or ship worm, which makes such swift havoc with other woods. Hence it is esteemed most valuable for the construction of wharves and jetties, and the spongy yet tough and elastic character of its texture has demonstrated its fitness for employment in military

works of defence, as witness the fort on Sullivan's Island during the Revolution; for, had it not been for the stout resistance of the palmetto logs and sand-bags of which the fortification was constructed, Sir Peter Parker, of H. B. M. fleet, would doubtless have had his own way with the brave Col. Moultrie and the devoted band of patriots under his command.

The structural character of Palmetto is peculiar and interesting. It has no bark proper, and is composed of a pith-like interior, throughout which is distributed irregularly, apparently with no special law of arrangement, queer bundles of woody fibre, which being closely compacted together and pressed towards the exterior or rind, by the deposition of matter and the formation of new bundles of fibres within, (as in all endogens,) the outer portion becomes extremely hard or horny. This indurated fibrous tissue is susceptible of a high polish, and is extensively manufactured into walking canes, the grotesque graining forming the chief attraction.

The spongy interior of the trunk is cut into blocks of convenient size, and used for scouring purposes, the soft pith soon wearing away, leaving the strong fibre as a coarse brush. The blades, from six to eight feet in length, and at their junction with the petiole, laid in numerous uniform pleats like a folded fan, are found capable of supplying many domestic needs. They are made into a fine quality of paper. Boiled, shreded on a hatchel and dried in the sunshine, they form excellent stuffing for mattresses and upholstery. They are split and braided into baskets, mats, hats, and fancy articles. Stripped up into narrow widths and attached to handles, they furnish the best of fly and mosquito brushes, and though lacking the grace and beauty of the peacock's plumes, are far more durable and satisfactory in their work.

The filamentous nerves which mark the divisions of the leaf, forming a fringe at the extremities, are netted into hammocks and twisted into ropes. We may judge of the strength of the fibre of some of the species, when we are told that in India they are used to make ropes for suspension bridges, and for lassoing elephants. The fruit of the Sabal Palmetto is a small black drupe, which is often eaten by consumptives spending the winter in Florida, who suppose they possess properties healing to the lungs.

Of the Serrulata, or Saw Palmetto, Dr. Shecut says, (in 1806,) "These have the common characteristics of Palmetto, and on the Sea Islands of Georgia are so closely matted together as to render the same almost impenetrable. Indeed, the whole of the maritime part of Georgia, and from Pocotaligo, Carolina, to Florida, in the route I took through those parts, presented a profusion of this species, which are armed with acute spines closely arranged along the edges of the stems, to the annoyance of man and beast. The mode of flowering is similar to that of other species of Palms, and is succeeded by fruit of the drupa kind, the size of a large plum, of a dark purple color, the pulp having an uncommon sweet taste. They are pleasant and tempting to the eye, but strangers pay dear if their curiosity leads them to eat one, although the Indians, swine, deer and bears are excessively fond of them."

The root of this species when burned, yields the greatest amount of potash, it is said, of any known vegetable product. *Charleston, S. C.*

GROWTH OF AGAVE HETERACANTHA.

BY MR. JOHN GURNEY.

Enclosed please find photographs of Agave heteracantha, with its spike of mature seed and seed-pods, flowers, etc.; of which I sent you some time ago. Also of Fourcroya elegans, which, though a very small plant, is blooming in the Gardens. It commenced making its blooming stem on the 12th of July, and reached its greatest height—7 feet 3 inches—by the 18th day of August. From the 12th of July to the 17th, its average growth per day was 2½ inches. From the 17th to the 25th its average growth was 3¼ inches. From the 25th to August 2d, its average was 3 inches; after which its growth was every day diminished, as it was then forming its 3 feet 4 inches long panicle for blooming. It did not commence blooming from the base of the panicle, but in ones in all parts. Nearest to the stem, on the branches of panicle, were arranged in triangle two blooms and one bulb, but on the extremities, one bloom and one bulb.

But few seed-pods are maturing, but appear to mature as freely when in connection with the bulb as without them. Flowers, greenish white.

Missouri Botanical Gardens, Sept. 16th, 1884.

EDITORIAL NOTES.

THE TONGA PLANT.—Of this celebrated plant Mr. Wm. Bull says: "A remarkable Arad introduced from the South Sea Islands; it has large shining dark green elliptic-oblong pinnatisect

leaves, more or less oblique, and having numerous pellucid spots scattered along the region of the midrib. When the plants are small and young, the leaves are entire, but gradually develop, until they finally become pinnatisect. The large inflorescence resembles that of Monstera deliciosa.

From this bold and ornamental stove Arad, a very valuable and important drug is prepared, known as 'Tonga, the specific for neuralgia.'"

Epipremnum mirabile—"Tonga."

PERFUMES IN FLORIDA.—It is said that the perfume industry in Jacksonville, Florida, is yielding products fully equal to the best French articles.

TEMPERATURE AND HARDINESS IN TREES.—We take it for granted that every "constant reader" of the GARDENERS' MONTHLY knows by this time that the hardiness of trees is not a question of temperature merely, but that the hygrometer as well as the thermometer has to be consulted. It is amazing that what we have gathered for our readers travels so slow in the Old World, that few of its intelligent inhabitants can understand it. One of the most advanced of Scotch botanists in attendance on the recent Science Convention in Philadelphia, was amazed to see the liriodendron "hardy" in the woods, when told that the thermometer sometimes went down 10° or 20° below zero, while it was "often injured at 20° or 30° below the freezing point in Scotland."

SCRAPS AND QUERIES.

REMARKABLE VARIATION IN A CONCORD GRAPE.—A correspondent at Newark, N. Y., writes: "We mailed you to-day some sample grapes. They are taken from one branch of a Concord vine, which for the past three or four years has borne grapes double the size of the balance of the vine, and has borne as many. Can you give any reason for it? If you will give us your opinion of it, and send copy of paper, we will be very thankful."

[This is the most remarkable variation in the grape that we have ever seen. The dark blue berries were three inches in circumference. The main stalk (rachis) was double the thickness of an ordinary grape, and the whole appearance was that of an unusually large and well developed Black Hamburg as raised under glass.

By the last paragraph, we take it our correspondent is not a regular reader of the MONTHLY, but this was apparent by his sending the grapes in a box of wet moss. One of our regular readers would surely have understood that, to prevent fermentation, we should keep fruits as dry as possible, so that they would not shrivel. The moisture added to these caused rapid putrefaction, and the size and color of the berries, is all we can note. The flavor and allied qualities are, of course, out of the question.

The case we take to be one of bud variation, not uncommon in the vegetable kingdom. Among flowers it is well known. Some of our best and most popular varieties of roses have been obtained in this way. The branch which makes the departure is taken for propagation, and is usually persistent enough to reproduce itself under these circumstances.

The same attention to getting new varieties from bud variation, has not been given to fruit as to flowers; although the most experienced pomologists know of them. Variations worthy of selection may often be had from sportive branches. We have in Pennsylvania, an apple called the Penn, which is certainly superior to the ordinary Baldwin, and retains its superior character under propagation, yet it is well known to have come originally from a Baldwin tree; and the Seckel is notorious for its numerous varieties, none of which are from seeds, but must have been obtained from sporting branches; or, as physiologist would say, by bud-variation. The subject is one of great interest, and deserves more attention than it has received from fruit growers.

In regard to the special case before us, we can only say further, that if the fruit is as good in quality as the Concord, the owner has stumbled on a fortune; and the sooner he commences to propagate from that branch, the better. All this is, of course, supposing that the branch is in a perfectly natural condition. Very large berries have been obtained by gardeners taking off a ring of bark, or by—which is the same thing—allowing a wire of a label to grow into the wood; but as "three or four years" is given as a successive period for the large fruit, we take it for granted that the statement is made in good faith, that the branch is in a natural condition.—Ed. G. M.]

GIVING A SPECIAL FLAVOR TO FRUITS.—M. M., Chicago, Ill.: "I have read in an agricultural paper the positive statement, that if the fruit-stem of a watermelon, in its young condition, be bored and impregnated with the flavor of vanilla, lemon, strawberry or any other essence, the mature fruit will have that peculiar flavor instead of or in addition to its own. I should have doubted this, but it seems to accord with what I have read in botanical text books, that, in order to trace the course of the sap in plants, they have been watered with colored liquid, and by tracing the colored liquid the course of the sap has been observed. If the color can be carried through the system of a plant, I suppose the peculiar flavor of that color would go with it. But I should be glad to have the opinion of the Editor of the GARDENERS' MONTHLY."

[This is one of those cases where a person can so readily obtain, by his own experiment, the answer he seeks, that we prefer that the experiment be made. Any person who has a watermelon or cantaloupe patch can get the answer without money and without price. Such an answer would

be immeasurably worth more than any answer that the Editor could give.

All we can say is, in a general way, that the flavor of fruits is mainly the result of a vital process with which mere chemistry, as we understand it, has nothing to do; and we should doubt, notwithstanding the reference of our correspondent to the experience of some experimenters in physiology of the past age, that any such external application can be made to permeate the whole structure of a plant or its fruit.—Ed. G. M.]

ERIANTHUS RAVENNÆ.—"Alpha" writes:—"Will you please inform me, through the MONTHLY, of what country the Erianthus Ravennæ is a native, and when and by whom introduced? Also, who discovered and introduced Doryanthes Palmeri, and when?"

[Erianthus Ravennæ is one of the swamp grasses common along the coasts of the Mediterranean Sea. Doryanthes Palmeri is a Mexican plant, discovered in recent years by one of our own explorers, Dr. Palmer.—Ed. G. M.]

AN EASY WAY TO MAKE HYBRIDS.—Mr. Mahlon Carver, of Carversville, Bucks co., Pa., writes: "I have thought for years there should have been more progress in bringing new varieties of fruits, plants and cereals than by the slow, uncertain force of admixture of pollen. While all other arts and sciences have made wonderful strides, we follow the same old routine, and the world has no such wonders as history tells us existed in the Hanging Gardens of Babylon, the Garden of Solomon, or beauties of Saracen conquest of Grenada in groves and gardens. In looking over the great changes in insect life and witnessing their wonderful transmutations, and noting the great assimilations of animal and vegetable minute organism, I am led to advance the theory of heart hybridizing, or changing and bringing out new improved forms by heart admixture. The first principle or life force springs from the heart; this is the first vital force in all animated existence. Nature furnishes a life-concentrating alloy in propagating species, to concentrate and give vitality to first implanted life germs in all varieties. You notice the great mission of insect life that renews life force by mixing the pollen of diverse varieties. What can be brought out to bless the human race, if my theory should prove correct, time and close experiments, patience and skill, will only determine. I feel sanguine of great results in time. I will in conclusion give the manner of conducting experiments, hoping you with your more extended experience and greater knowledge will suggest a wiser plan: Firstly, to hybridize wheat and rye, or oats and barley, take an equal number of grains of each variety, soak in warm water until they begin to germinate, then with a sharp thin instrument cut them in halves, put the half of each variety together—heart ends together—secure with mucilage or some life-giving alloy, and plant. I believe the plum and peach, the walnut and chestnut, and the shellbark and acorn, can be changed into new forms to beautify the earth and bless humanity. Excuse the liberty I have taken of trespassing on your time and patience. I hope you will give the subject your kindest consideration, and spare me a word of encouragement if you deem my theory worthy of further favor."

[The best encouragement we can give our friend is, to try it himself. If any one else cut the half of a peach kernel across and graft the half of a cherry kernel on to it, and get a new hybrid fruit from it, our friend will be sure to come forward and claim the honor of making the first suggestion, and it would be an honor indeed! But how much more honorable would it be for our correspondent to do the thing himself. It is extremely disinterested in him to give away so grand an idea, but we are sure few of our readers will want to profit by it at his expense, and will agree with us that in a matter so easily tried, it will be only fair to let our correspondent have the full credit that may follow the successful experiment.—Ed. G. M.]

ATTAR OF ROSES.—A correspondent writes: "Have you verified the recipe for Otto of Roses given on page 317 of G. M.? I am afraid the person who embarked in the oil of rose business, and used that process, would 'get left.' The quantity of volatile oil in the most fragrant roses is very minute, and 100 pounds of the petals yield but 3 drams (180 drops) of it by distillation. The recipe you give would yield a very fair rose water, but it would require the use of a microscope of high power to discover the globules of oil."

PHYLLOXERA IN PENNSYLVANIA.—"I would be much obliged to you, if you can give me the following information:

"Is the vine cultivated in Pennsylvania; in which part of the State; and is it with purpose of making wine?

"Is the vine contaminated by phylloxera?

"What means have been used in order to prevent or abate it?

"I have to make a report about that matter to

my Government, and all the information you will be kind enough to give me will be very useful in this circumstance. Yours very truly,

"The V. Consul for France at Philadelphia."

[The Phylloxera of the grape vine, is an American insect, which has perhaps for untold ages, been feeding on the American species of grape vine; but, for reasons which we need not here follow, it is not seriously injurious to these vines. But the European grape—belonging to another species—is not able to withstand the attacks of the insect as the American species of vine can; and this is the reason why, in America, there is no serious trouble to the cultivator from Phylloxera, while the European vineyards are almost totally destroyed when the insect gets among them.

The grape is cultivated very largely about Reading, and other places in the State of Pennsylvania—both for wine making and for other purposes—and the Phylloxera is found abundantly everywhere. No means are employed against it, because it is no serious injury; but it must be remembered, as already stated, that the grape cultivated is of the American and not the European species. All attempts to succeed with the European grape in Pennsylvania during the past one hundred years, have failed, as it is now believed from injury through Phylloxera.

As the insect is already in Europe, it is of no use for the French Government to embarrass trade by laws against its introduction. The best course is to encourage the introduction of the American species of vine to France, and the grafting of the European grape thereon. This has been going on to a great extent among commercial men who have come to understand the case; and we suggest that instead of a large force of officials at French seaports to examine introductions for signs of the Phylloxera, the money spent on a free distribution of seeds of American native grapes, would be far more advantageous to French viticultural interests.—Ed. G. M.]

NEEDLE GRASS OF TEXAS.—"G. W. H.," Belvidere, N. J., sends the following interesting note: "I enclose some fragments of the seed vessels of what we call Needle Grass, in Texas; grows on sandy land west of Colorado River. Will work their way through your clothes and scratch most unmercifully, and to sheep they are torture, passing through the wool into the skin, forming pustules. One lamb began to lose his wool in consequence of the irritation. I finished it, leaving him with a bare skin. I found twenty pustules, none less in size than the largest pea, and all full of matter, each formed around one of these points. The seed appears to be at the point, so that there can be no failure of being carried off by whatever it is attached to.

"I wonder if there are any seeds that are not provided in some way by nature, with means of distribution?"

[This proves to be one of the Feather Grasses—Stipa sparta. As our correspondent well remarks, every seed has some method of distribution allotted to it, but the feathery awn of the Stipa is supposed to be the special agent in this case; and the barbed points, it has been suggested, are aids to let the point firmly into the ground. We should think that when a seed once gets fast in the flesh of a sheep, and could not get out till corruption had surrounded it, the ferment material would end the life of that seed.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

ADVERTISING.

BY SILVIUS.

Perhaps in no other country is the press so liberally patronized by seedsmen, florists and nurserymen as in the United States. In their advertising seasons, which cover most of the months of the year, we can rarely pick up a periodical that does not contain some of their advertisements; and journals of established reputation contain column after column of such "Ads," the cost of which must be high in the hundreds of thousands of dollars. Every business man must fully appreciate the value of advertising, and in this age when in every department of life's work-shop progress is making such gigantic strides, when that which is "best'

to-day is surpassed to-morrow, it is absolutely necessary to use "printers' ink" freely. But it is only "judicious advertising" that pays. The advertisement must be neat, attractive, well worded, and, above all, it must have an honest face. "Free," "Given Away," etc., do not refer to valuable articles, and will not prove a "bonanza" to an advertiser who is doing a legitimate business and expects to continue it for years to come. In order that advertising shall pay, it is necessary that the advertiser's standing or integrity shall be as high in the opinion of the reader as any of his competitors, and this reputation he must maintain untarnished. The constant reader of any publication will have more confidence in the publisher than he will in the man who occasionally or even frequently uses the columns of the journal as an advertiser; hence I believe if a publisher and an advertiser offer for sale the same article in the advertising columns, the orders from the readers of that paper will almost invariably be sent to the publisher and not to the legitimate advertiser. In such cases the advertising pays the publisher who has used the article advertised as a bait to catch subscribers and whose space occupied by such advertisement has cost him nothing, as it would have to be filled with some kind of matter before it was printed; and it does not pay the legitimate advertiser who pays hard cash to the tune of from 50 cents to $2.00 a line for each insertion of his advertisement, which is eclipsed by the standing of (in such cases) his competitor, the publisher. I have been induced to write this article from the receipt of a journal which solicited an "ad" to place before its 60,000 readers. We granted its request, forwarded an electro of the advertisement, and have just received a copy of the paper containing the advertisement. It ought to pay; it would pay and pay well, but on the next page, facing our small "ad," is the publisher's advertisement of three solid columns, fifty different collections of greenhouse plants and bulbs. The space of this advertisement would cost at published rates $210.00 for one insertion. We have not fainted, but shall not be compelled to increase our working force in order to fill the orders derived from that "ad" of ours. This is not an isolated case. Seeds, bulbs and plants are offered as premiums by many publications, and yet, we in the trade patronize the publishers even though they take our business from us. We are aware there is another side to this story, but we have not time to anticipate the arguments and refute them now; we are writing of an injustice done and being done to our brethren in the business as well as ourselves; and as the GARDENERS' MONTHLY is, or should be, read by all of you, we place the article (if the Editor will permit) in its columns for your consideration, with the hope that it may raise some movement whereby the evil may be eradicated or the columns of such publications be left "severely alone" by all our advertisers.

New Brighton, Pa.

[We admit this as we often do others, because we love to give the most liberal interpretation to free discussion. But advertising is wholly a matter for individual calculation as to profit and loss, and the last lines of our correspondent's communication really cover all that can be said about it. An advertiser should let an advertising medium severely alone if he feels that the odds are against his getting any benefit from it.—Ed. G. M.]

FRAGMENTARY GOSSIP.

BY WM. T. HARDING.

An esteemed friend, writing from England, says: "On July 4th I went to Lichfield, and was sorry to find Dr. Johnson's Willow had been destroyed by a storm. It is so twisted and torn into fragments, and I don't know if they will be able to get a shoot of it to grow." And thus reads the sad story of the noted tree I visited when in England in 1881. At that time the noble scion from the original and "favorite tree of the Doctor" was one of the most majestic specimens of Salix Russelliana to be found. Its remarkable and venerable predecessor, the grand old tree under which the celebrated Dr. Johnson would often sit and meditate, met with a similar fate in 1829. The handsome tree recently destroyed was raised from a branch a neighbor stuck in his garden for a pea-stick. Tenacious of life as the willow is known to be, it there, fortunately, took root, and was afterwards transplanted, with much ceremony by the citizens, in the exact spot where the old one previously stood. The last time the learned philologist enjoyed its grateful shade was in 1781, and, from a drawing of the same, it appears to have been a very picturesque old tree. From a personal knowledge the writer has of how much the people of Lichfield regarded the arboreal reminder of the most distinguished literary man of his time, he feels assured they will succeed in perpetuating the famous tree from a cutting, as was the case with the one under notice. Possibly, from the fact of its being a vigorous and sturdy tree at the time of

its prostration—from adventitious buds about its base another tree will spring up, and will, as Pope has it, "flourish there when those are passed away," for future generations to admire.

The same correspondent who furnishes the above unwelcome news, also laments at the change of scene and circumstance surrounding the princely estate of the late Mr. Bass (of Burton ale renown), at Rangemore, in Needwood Forest. And thus spoke my friend: "Now that old Mr. Bass is dead, there are to be great alterations at Rangemore—not for the better, I regret to say. They have begun to pull down already" (the immense glass structures about the garden, I presume is meant), "and I understand that almost all will have to come down in the spring." Now, this is not a striking case of "such a father, such a son," in this instance. No doubt the present proprietor, Sir Michael Bass, would prefer seeing fine fields of barley growing for brewing purposes, where now spreads one of the most beautiful green lawns in England.

The old gentleman, whose great wealth was acquired from the brewing of ale and beer, was, anomalous as it may seem, one of the most generous and philanthropic men in the world. His heart seemed as large as his purse, which never failed to open at the tale of distress. And, as a legacy to the people, he built, furnished and endowed churches, public schools, libraries, museums, free baths, and laid out recreation grounds, etc., for the good of those less fortunate than himself. As a member of Parliament, he had represented Derby for many years, and, although a man of business, his tastes for rural scenes and the quietude of country life outweighed his love for the bustling town; and, in order to gratify his desires, sought seclusion in the beautiful and extensive grounds which surround the large and elegant mansion at Rangemore, in the ancient forest of Needwood. This charming retreat owes much of its present renown to the skill and intelligence of Mr. Bennett, whose artistic and scientific attainments are so well known to the lovers of horticulture. Under his supervision the many hothouses, greenhouses, conservatories, forcing-houses, pits, frames, etc., were erected, and successfully managed. Fully confiding in his integrity and ability, Mr. Bass gave the whole charge of this unique establishment to Mr. Bennett's care, and with the assistance of eleven well-trained hands constantly employed under glass, and twenty others in the gardens and pleasure grounds, with any number of extra men when required, the whole of this well-ordered place was satisfactorily conducted.

Without entering into minute particulars, I will instance a few examples of how advanced horticulture was carried out. There was an excellent peach house, two hundred feet long, in which enormous quantities of ruddy-cheeked, delicious fruit were produced before those on the handsomely-trained trees on the garden walls are ripe, of which there must be many acres of wall surface covered. Besides these there are vast ranges of early and late vineries in which hung some excellent, well-colored Black Hamburgs, Lady Down's Seedling, Gros Colman, etc., the bunches of which were unusually large. Then follow a number of orchard houses for various kinds of other fruits, with long stretches of melon, cucumber, and pineapple houses, which were principally stocked with healthy-looking Queens, Envilles, Ripley Queens, and Black Jamaicas. On the north side of the dividing walls were the fruit and seed rooms, mushroom houses, offices, etc.

In the plant houses were fine collections of Cape Heaths, averaging from five to ten feet in circumference, with splendid New Holland plants skilfully trained into comely forms, and, as were the heaths, they also were densely covered with exquisite flowers. Of Orchids, there was a good selection of well-grown plants under a spacious span-roofed structure, and, like the curious Cacti and their singularly succulent alliances, these peculiarly interesting plants never fail to excite wonder and admiration whenever seen. There were many more houses, too numerous to mention, in which specialties flourished, such as Pelargoniums, Palms, Camellias and Azaleas, and other splendid plants. And these were all adequately heated with hot water and properly located within the large vegetable and fruit gardens, replete with abundance of everything desirable or worthy of cultivation. Around the sections and borders were some fine examples of espalier and cordon fruit trees, bearing choice fruit. This superb garden is approached from the mansion through one of the most smooth and picturesque lawns possible, along well-rolled graveled walks, which pleasantly wind under wide-spreading trees and through clumps of Laurels, Aucubas, choice Coniferæ, Arbutus, Buxus, Osmanthus, Laurestinus, Tamarisk, Ilex, green and variegated, Berberis and Mahonia, Rhododendrons, etc.; and in advantageous positions stood handsome Araucaria imbricatas, Quercus Ilex, Q. pectinata, and Q. asplenifolia.

Speaking of lawns, nothing possibly could be

more charming than the many broad acres of undulating neatly mown green sward, more soft and elastic to walk upon than any velvet carpet ever spread in palace or hall; and is judiciously, at proper intervals, relieved with either isolated specimens, or choice groups of ornamental trees or shrubs. And from among these beauty-spots, lovely glimpses of a large lucid lake may be seen glistening in the sun. This very picturesque sheet of water seemed alive with several species of handsome water fowl; conspicuous among them was the stately swan, wading and swimming among aquatic vegetation. While away from the larger lake and its pretty green isles, among the trees and bushes beyond, were some very romantic looking "bits" of landscape, the artist would be glad to sketch—in the way of purling brooks, dimpling rills and elfin pools, or cosy half hidden moss and ferny banked water nooks—mostly overlooked from rustic grottoes and bridges, in which the little Fairy folk, Driads, Nymphs and Naiads might innocently dabble or bathe, *a la mode* Susanna, among the lily pads and minor aquatics.

Beyond all this, yet adjoining thereto, was the noble deer park, which formed a part of one of the loveliest landscapes possible. While still further in the distance, through the trees, the graceful church spires and steeples of Burton-on-Trent were in view.

The flower garden proper, with its many attractive features, was a geometrical marvel, and a model of beauty, and occupied a large space on the lawn, near to one side of the massive stone mansion—with the grand conservatory near by. Upon this terrestrial Elysian, was lavished all the pounds, shillings and pence necessary to make the proprietor, with his family and friends, as happy as mortals could possibly be in the sylvan shades of Rangemore.

This brief and imperfect sketch is drawn mostly from memory, as the writer recollects it when last he saw it, three summers ago; and with many regrets for the impending evil which is likely to befall this delightful spot, lays it before the kind reader who "enjoys his gardens and his books in quiet."

The forest scenes around Rangemore, and extending therefrom, though they may not cover ancient classic ground—may nevertheless with much truth be termed old historic and romantic ground, on account of the exploits of "Bold Robin Hood and his merry men," who thereabouts hunted the King's fallow deer, and robbed the rich Abbots and holy Friars, on their way to Hoar Cross, Abbots Bromley, the shrine and holy well of Saint Chad, or Burton Abbey.

The greenwood shades of Sherwood and Needwood forests, during the reign of Richard 1st, were equally well adapted for the concealment and safety of the numerous outlaws who infested them. Alluding to the lawless deeds and vagaries of Robin Hood and his companions, I quote from old ballad lore the following lines:

"In this our spacious isle I think there is not one,
But he hath heard of him and Little John;
And to the end of time the tales will ne'er be done,
Of Scarlock, George a Green, and Muck the miller's son."

Whoever has rambled through one of the deep forest roads flanked on either side with hawthorn hedges, with here and there a neat bush of broom or furze, dotted with graceful ferns and pretty wild flowers on the sloping banks, over which hang the weird looking boughs of the lichen and moss covered old oaks, from which the ancient Druids may have gathered the hanging mistletoe ages ago, will be deeply impressed with the romantic scenery around. And such is common to many forest mansions which nestle among the sturdy oaks and immense holly trees, for which Needwood forest is famous. In fact, there are more broad butted hollies, Ilex aquifolium, of the largest size, and possibly, the oldest living trees of their kind elsewhere, to be found about the enclosed parks and pleasure grounds of the wealthy proprietors, who revere and protect them; and, where they are likely to remain from generation to generation. And there are many who delight in forest scenery, where, undisturbed they enjoy the face of nature in some of its loveliest aspects, and in the leafy recesses and stilly solitudes away from the eye of the world, find happiness unalloyed.

Mount Holly, N. J., Oct. 2d, 1884.

EDITORIAL NOTES.

WESTERN STATES OF AMERICA.—It seems very strange that Europeans take so little pains to talk accurately about American geography. The "*Forestry*," of London, tells its readers that the Yellowstone Park is in "the Western States of America."

UNPAID EXPRESS PACKAGES.—Quite a number of packages, unpaid or but partially paid, have been presented to us by express companies the past month, which we have declined to receive. We have no doubt that the senders prepaid them, but, as we have often stated, the senders should mark

on the packages "Paid through." This does not prove that the packages were prepaid; but it is a remarkable fact that the express companies have never sought payment from us of any packages that have been so marked.

PATENT RIGHTS ON NEW FRUITS.—Some years ago there was an urgency in some quarters that "patent rights" should be given for new fruits, and the GARDENERS' MONTHLY was not kindly spoken of, because it could not conscientiously advocate the measure. It could not advocate it, not because it did not think discoverers of new things should not be adequately or abundantly rewarded, but because it could see no way under existing patent laws by which the introducer of a new fruit could be protected as patentees usually are.

The way was however open to try it who choosed, as it was fully competent for any one selling a plant to stipulate that it should be only grown by the owner and not propagated for sale.

The Niagara grape company, which invested a large sum in this excellent variety, tried the method, and sold with the proviso that no one should have any interest in the cuttings, but in the fruit only, until 1888; but they have now concluded to abandon this restriction, and those who conclude to buy may, in the spring of 1885, become absolute owners of the vines.

PONTIUS PILATE.—The forestry convention held in Scotland recently, and where our Professor C. V. Riley received a gold medal for his services in forestry, has been picking up odd bits of knowledge outside of their immediate province. Genealogical trees, as well as the trees of the present time, have been investigated, and they have found a belief among the Scotch people that Pontius Pilate was a Scotchman. It is said his father was one of the ambassadors sent by Cæsar to treat with the ancient Caledonians, and that the son, Pontius Pilate, was born at Fontingal. Whether his mother was a Roman lady who shared the travels as well as the name, or whether the mother of Pontius was a Caledonian charmer of the noble Roman, is not part of the tradition. But it is said the Scotch people who believe in the tradition hope Pilate was a Scotchman simply by birth, and not by lineage.

FASHIONABLE NAMES.—Sericiculture is now the fashionable name for silk culture; Dendriculture for tree growing; Fragariculture for the strawberry; Solanituberosiculture for the potato, and Znidroykstchantsthantzuidkleiniculture for we do not know what.

SUBTERRANEAN FLOWERS.—Professor Eichler has lately described, in the "Jahrbuch des Königlichen Botanischen Gartens zu Berlin," a singular Brazilian Anona, which, from the peculiarity now to be mentioned, he calls rhizantha. It is a tree of moderate stature, from whose trunk descend numerous very slender branches, destitute of leaves, or with scales only, and thus resembling aërial roots. Towards the ends of these branches flowers are formed, which are thrust into the ground as the branches lengthen. This plant then affords another illustration of the tendency which some plants, of which Arachis hypogæa is perhaps the best known illustration, have of thrusting their flowers into the ground. We do not call to mind, however, any previously recorded instance of a tree having this habit.—*Gardeners' Chronicle.*

WILLIAM SAUNDERS, OF LONDON, ONTARIO.—The *Rural New Yorker* of August 9th has an admirable likeness of this eminent Entomologist and good friend of intelligent horticulture. We say, admirable likeness, because the cuts of well-known people that appear in so many papers are so horrid, that many who would feel gratified by this public compliment often dread the ordeal through which this has so successfully passed.

We learn from the sketch of his life and services which accompanies the picture that he was born at Crediton, in Devonshire, England, on the 16th of June, 1836, coming with his parents to Canada in 1838. He is Editor of the *Canadian Entomologist*, President of the Canadian Entomological Society, President of the Ontario Fruit Growers' Association, Government Commissioner on Fruit Growing and Forestry in Canada; is the government analyist for the Dominion of Canada and Professor of Materia Medica in the Western University at London, Ontario. He is a Fellow of the American Association for the Advancement of Science, and has been general Secretary of that body; one of the founders of the Royal Society of Canada, Fellow of the Royal Microscopical Society of London, England, and an active member and the recipient of many honors in other societies. Aside from all this, it is a great pleasure to note, that he is an active business man in the town in which he resides, and is a living example of what we love to record, that it is not necessary in order to be an eminent scientific man, that one should be wholly unfitted for the every day affairs of life.

FRANCIS B. HAYES.—The Massachusetts Horticultural Society sustains a severe loss in the death of this gentleman, who was serving his fifth term as its President. He died at his Boston residence

on the 20th of September, in the sixty-fifth year of his age. He was a lawyer by profession, but his large fortune was accumulated chiefly in railroad enterprises. Besides the great attention he gave to these interests, he devoted a good portion of his spare time to public affairs, and at the time of his death was the candidate of the Republican party of his section for the United States Congress. Horticulture was his recreation, and both his residences, in the city and at Lexington, were models of good taste. The Lexington estate comprised about 400 acres. At the time of his death he was engaged in building a costly cottage from native stone, chiefly to show its great fitness for architectural work, and which was located so as to exactly overlook the spot on which was shed the first blood offered up in sacrifice for American Independence. His conservatory was probably one of the largest and finest in New England, and was built on the promise of Col. Wilder that he would spare him one-half of his magnificent collection, and thus perpetuate what perhaps the growth of Boston would probably some time drive away. His management of the Horticultural Society was eminently successful, his term as President having been longer than any but the eight years of Col. Wilder's. Col. Wilder passed his eighty-sixth birthday on the 22d of September, a few days after the death of what must seem to him a young friend.

Mr. J. B. Moore, of Concord, has been elected to the vacant Presidency.

GEORGE BENTHAM.— In the death of this gentleman who, on September 10th passed away in his eighty-fourth year, we lose one of the greatest botanists of our age. His name is connected with so many plants, that in this way alone he will be familiar to most of our readers outside of immediate botanical circles. He was connected with Dr. Hooker, some years ago, to prepare a work describing all the Genera known, and this he fortunately lived to see completed. Thus, the "Genera Planturum," by Bentham and Hooker, will truly remain a monument of learning and patient industry.

DOWNING'S FRUITS AND FRUIT TREES OF AMERICA.—Mr. Charles Downing, though advancing in years, is yet actively engaged in pomological usefulness, and has just finished revising a new edition of the above work, which has been issued from the press. He has also issued a third appendix to his large work, "Downing's Descriptive List of all Known Fruits." This brings the work down to 1881.

THE MAN WONDERFUL AND THE HOUSE BEAUTIFUL.—An allegory. By Ch. and Mary A. Allen. New York: Fowler & Wells Co.

This is a work for home reading, intended to teach the principles of physiology and hygiene. It has the misfortune of a long title, which is usually against the popularity of any work; and it is especially a misfortune here as it is indeed a very good book, and one we can cordially recommend. It is not often that we feel we can unhesitatingly do this in works of this character. It may be there is nothing whatever in the complete study of physiology that any human being should not know; and yet people instinctively feel that when the ancient wrote "there is a time for all things" he told a great truth, especially here. It is to the credit of this work that it is different in this respect from some others. There is nothing whatever in it but is in season at any time for study, and it should be welcome in every home where there are young people, to whom the same subject in plainer dress would not be attractive.

SCRAPS AND QUERIES.

TO INTELLIGENT CORRESPONDENTS.—*All communications relating to advertisements, subscriptions, or other business, must be addressed to the publisher, 814 Chestnut Street, Philadelphia.*

All referring to the reading matter of the magazine must be mailed to the editor, Germantown, Pa.

No express packages for the editor received unless prepaid; and marked "Paid through to Germantown, Pa."

EXOTIC OR INDIGENOUS.—Mr. F. W. Kelsey, says: "If you will pardon the expression, I do not see that your criticism on the use of the word 'Exotics' in my article helps it materially, for it assumes either that I made a mistake in using it, or did not know its meaning, or that your readers were incompetent to judge of its application as intended. I think even a hasty reading shows that the word is there used in the common acceptation of the term as applied in such cases, viz.: that as a rule, foreign plants are less hardy than native and require more careful treatment accordingly. This is as I frequently use the word and more often see and hear it used; and in cases like this, where the meaning is perfectly clear, it would seem as though the intimation that either the writer or reader (or both) are fools, is superfluous, to say the least. However, I didn't start out to criticise

the Editor, but merely to note a reminder in a friendly way."

ORIGIN OF THE NAME VERONICA.—"F. R. W.," West Philadelphia: "Since reading your interesting work on the 'Flowers and Ferns of the United States,' I have taken a great interest in the derivation of plant names. Interested in Veronica, I see Dr. Darlington says the name has been derived 'from the Romish Saint of that name.' Veronica, I believe, was the name of the woman who gave a handkerchief to wipe the face of the Saviour on his toilsome journey with the cross to Calvary. In what way is this pretty blue flower connected with this history?"

Our correspondent is mistaken. The name of the woman in question is not known. It is the handkerchief itself which is called Veronica. The word is derived from *vera* and *iconica*, that is to say, "the true image," and the handkerchief which is preserved in the church of St. Peter's at Rome, is said to have, traced in blood, the true image of the face of the Saviour thereon. The earliest history of this handkerchief reaches back only to 1143. The "Romish Saint" Veronica, was a Milanese woman, who died in 1497, and was not in the published list of Saints of the Romish Church till 1749; while the name of Veronica had been given to this plant long before, and possibly before the Veronica, or handkerchief, had become famous.

So recently has this Saint been on the calendar, that the monks who dedicated flowers to various Saints, never thought of her; and the Veronica flower itself, is dedicated to Saint Barbatus, a bishop of Benevento in Italy, who flourished in the seventh century.

Dodonæus who wrote in 1587, says, that the original name of the plant was Betonica, and that Veronica was a name given it in comparatively recent times. But this carries it back perhaps to 1200 or 1300.

No one in history seems to know why it was so named. It seems to us just as likely to have been a corruption of Betonica to Veronica, as to have any other origin; and this seems the more likely, as Dodonæus himself notes that in his time, the Bohemians called it "Weronyka."

At any rate, it strikes us that the connection of the plant with "the Romish Saint of that name," is but a wild guess, which even so scholarly and usually accurate an author as Darlington, may occasionally be led to hazard.

THE ROSE ROT.—A Nova Scotia correspondent says: "If you can spare a line to thank Ernest Walker for his paper, I should be glad. I feel from experience that he teaches sound doctrine. There is nothing like fresh air. The article on p. 267 will pay any practical rose grower to read over several times."

THE LOTUS.—"Inquirer." The Lotus of the Egyptians is not our Nelumbium luteum, the American Water Chinquapin, but a very closely related species, Nelumbium speciosum. The latter has rosy pink flowers; the former, straw yellow. There is not much difference in other respects. The Egyptian has leaves rather more glaucous.

As to what is the "famous Lotus," we scarcely understand our correspondent's meaning. The seeds of the aquatic are starchy and nutritious and were doubtless eaten. At the same time, a "Lotus" is famous in the shape of a sort of Persimmon, which grows along the shores of Northern Africa. If the Lotus is to be something that is to be "food for the Gods"—Diospyros, we should prefer to vote for the Persimmon.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

SEVENTY-FIVE KINDS OF APPLES.—A correspondent desires to know what in the world is the meaning of the premium offered in the New Orleans Exhibition for "apple trees of seventy-five kinds? What nursery grows seventy-five kinds of apple trees?"

So far as we see, there is no limitation that these are all to be grown by one person or firm in his nursery. In agricultural colleges large collec-

tions in the orchards would be very instructive; and when "making money" and the "nursery and fruit business" are not thought to be objects for which colleges are instituted, a great number of varieties of fruit, in order to educate the young to a knowledge of varieties, would be a very good thing to have around. But we do not know whether the object of the premium was to encourage such orchards.

THE SOCIETY OF AMERICAN FLORISTS.—This body, organized at Chicago last year, will have its first annual meeting during the last week in August, 1885. John Thorpe, Queens, New York, is President; J. M. Jordan, St. Louis, First Vice-President; M. A. Hunt, Wright's Grove, Chicago, Treasurer, and E. G. Hill, Richmond, Indiana, Secretary.

A circular giving the aims of the society has just been issued, and may be had of the officers.

ONTARIO FRUIT-GROWERS' SOCIETY.—The annual meeting was held at Barre, on the 2d of October. The officers elected for the coming year are Mr. Saunders, President; Mr. Buck, of Ottawa, Vice-President, and Mr. Beadle, of St. Catharines, Secretary and Treasurer. Mr. Saunders, as President of last year, delivered the annual address. He dwelt chiefly on the immense impetus the society had given to the encouragement of fruit culture in the Dominion. He said, among other good things: "I can clearly recall the first appearance of home-grown, cultivated strawberries in the market of London, and the confident predictions made by the wise ones that it would never pay to cultivate these larger strawberries where wild ones could be had for the picking; besides, it was urged that the market would soon be overstocked, and what, then, would these enterprising enthusiasts do with their products? At that time a few quarts sufficed to supply the demand which it now takes hundreds of bushels to meet. Experience has conclusively shown that the public taste for fruit keeps pace with the increased production; these desirable products are now almost constant articles of diet, and their healthfulness is universally conceded. Those who closely study the rates of mortality, tell us that within the past twenty years the average of human life has been materially lengthened, and while this may be largely due to improved sanitary conditions, there is little doubt but that the healthy addition to our diet of a larger proportion of fruit has also been an important element in bringing about this desirable result."

ENCOURAGEMENT FOR SKILL AT HORTICULTURAL EXHIBITIONS.—It is some time since we commented on the effete system of premiums as given at horticultural exhibitions, and suggested improvements thereon. What we said seemed to be wasted. The old system prevails, and all around us societies "go down," as they will go, until some new method of rewarding skill is inaugurated. There is practically nothing to exhibit, for in the great majority of cases the money value of the premiums being generally far below the cost of exhibition,—the honor and credit given still less,—and the influence for good on the community so very small, that few can bring themselves to a cheerful answer as to the use of exhibiting at all. Instead of exhibitors coming forward willingly with their products, it is in a majority of cases, up-hill work for committees to bring them out at all, and it generally ends by the exhibitor vowing it is the last time you will find him there.

The weak point is that not enough is done to give due honor and credit to the good things an exhibitor may have. The jury should be compelled to give their reasons for the award, and the society should make it a point to publish far and wide the meritorious features of the fair. The mere fact that Jacob Holloway was awarded fifty cents for a string of onions on exhibition, does not in any way aid horticulture, and the bare announcement of this fact in the official proceedings, which nobody reads, is of no concern to anybody but to Jacob Holloway himself.

Even Jacob is only interested to the extent that it only cost him a quarter to get the articles there, and that he has made twenty-five cents; besides, gets a free ticket, as an exhibitor, to the fair. We would not abolish money premiums, by any means. We would rather make them larger. But the point is, that it should be only a small part of the society's duty to provide for them. As it is now, there is very little, beyond the mere money view, to bring out an exhibit, and this will not excite the enthusiasm necessary to make societies a success.

MASS. HORTICULTURAL SOCIETY.—The number of wealthy amateurs, who love gardening, and do their best to encourage a spirit of emulation, which reacts favorably on public taste, is very large around Boston; these mostly support ably the exhibitions of the Horticultural Society. Hence, the cityis famous for its neat and tastefully kept public squares, gardens and cemeteries. The miserable, dirty holes which you call public squares in Phila-

delphia, would not be tolerated here for an instant. A correspondent says: "The weekly meetings of our society always have something of special interest; and so great is the public desire to know all about its doings, that our newspapers take special pains to have full reports written by persons who understand what they are reporting, prepared for them. I think the meetings recently have been of more than usual interest, especially the one that has just closed. It has proved to be the most successful, on the whole, of any of the annual exhibitions made by the Massachusetts Horticultural Society. The attendance has been double that of last season, and the cash receipts for admissions have been proportionate. The managers accordingly feel that their efforts in the past have been effective to the end proposed, namely, the education of the public mind to a genuine interest in horticulture, whether in the practical form as cultivators of garden products, or in what, perhaps, may be termed the philosophical and æsthetic form as lovers of progress in the useful arts, and of the beautiful in nature. While contributions of actually novel growths of fruits or flowers were not numerous, such were not lacking in the exhibition of this year. The success of the exhibition as a demonstration, was rather in the presentation of superior specimens of known growths, which had already gained recognition and favor. In respect to fruits, so many superior varieties are already known, that a new or seedling product must be of high excellence to warrant exhibition. Accordingly, any considerable number of these is not looked for. Among the grapes there were, however, two seedling exhibits not before seen in Boston. One, called the Oberon grape, originated in Ohio. It is a hybrid, partaking of the qualities of the Concord and the Muscat Hamburg. The other was the Alnwick seedling, which, as its name might suggest, is of English origin. The particular specimens of this grape shown were grown on the estate of R. M. Pratt in Belmont, Mass.; the exhibitor being David Allan, the gardener of the estate. It is said to be a grape which keeps well, and in England, where it has a high reputation, it is held in store in good condition until May."

It was prize day for tropæolums and marigolds, and large displays of both were made, especially of marigolds. The first thing that strikes one in viewing such an exhibition is the marvelous variety into which the few types of these flowers have sported. But a few years ago the tropæolums or nasturtiums—"stertians," as they were frequently called—were represented by a single color, orange red, but now we have an endless variety, from pale yellow to brown or fulvous. Marigolds are of a greater number of species, but the few types formerly known are greatly varied in size, form and color, and are both double and single. All these types of both flowers were well represented in the exhibition to-day. It was also prize day for single dahlias, and, although in one sense these are the oldest of all,—the numberless variety of double dahlias having sprung from the single,—it is only within a few years that the latter have been improved by the florist's art and been generally cultivated in our gardens. The specimens shown were abundant and excellent, some of the striped varieties being very remarkable. All the prizes offered for flowers were awarded.

A collection of Scabiosa or Mourning Bride, from D. Zirngiebel, was another example of the results of the florist's art, the flowers, which were originally of a dark, rich maroon color, having sported to crimson, pink of several shades, purple, and almost white.

One of the leading patrons of horticulture here, is Mr. R. M. Pratt, whose gardener, David Allen, usually manages to walk away with both pockets full of premiums. He had here a bunch of Black Hamburg Grapes that weighed five pounds and four ounces. Our veteran flower-lover, C. M. Hovey, is usually among the exhibitors, and Messrs. H. H. Hunnewell, F. L. Ames and Samuel R. Payson, contribute of their rich stores. The exhibitors of fruits and vegetables are legion.

CRYPTOGAMIC PLANT EXHIBIT.—Dr. Thomas Taylor, microscopist of the Department of Agriculture, has prepared for the New Orleans Exhibition one of the finest collections of drawings of cryptogamic plants ever brought together. The drawings are in water colors, representing the microscopic plants to which they relate on a largely magnified scale, and especial care has been taken to make them botanically correct. They include illustrations of the edible and poisonous mushrooms of the United States, and many of the parasitic plants which cause diseases of fruit, trees, vegetables, and cereals, such as pear-tree blight, the potato rot, rust in wheat, etc. The exhibit will occupy fully one thousand feet in the exhibition building. A portion of the collection is now on exhibition at Louisville, and another will be sent to the exhibition at Cincinnati. This exhibit will be much larger than the one Dr. Taylor prepared for the Centennial, on which he was awarded a diploma for its size and beauty and the correct drawings.

GLASS

For GREENHOUSES, GRAPERIES, CONSERVATORIES, HOT HOUSES AND HOT BEDS.

VANHORNE, GRIFFEN & CO.,

IMPORTERS OF FRENCH WINDOW GLASS. ALSO AMERICAN WINDOW GLASS. tan13

131, 133, 135 & 137 Franklin St., New York City.

Art of Grafting and Budding

BY CHARLES BALTET,

Appropriately and fully illustrated by 186 cuts, showing methods, tools and appliances. Pp. 230, 12 mo. cloth, flexible. Price $1.25 mailed, postage free. Address,

CHAS. H. MAROT, 814 Chestnut Street Phila.

ASPARAGUS CULTURE.

The BEST METHODS EMPLOYED in ENGLAND and FRANCE.

BY JAMES BARNES AND WM. ROBINSON.

With translations of Mr. Lebœuf's Essay on Asparagus, and particulars of the seven years competition instituted for its improvement. Illustrated with wood cuts. New edition. 84 pages. 50 cents by mail on receipt of price.

Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

CRANBERRY CULTURE.

BY JOSEPH J. WHITE

Embodying in plain and concise manner all the useful and practical facts which study and experience have yielded to the inquiring Cranberry grower of the present time. 126 pages, 12 mo, cloth. Illustrated. Price, post-paid $1.25.

Address, CHAS. H. MAROT, 814 Chestnut St., Phila.

FRUIT GROWER'S FRIEND.

AN EASY GUIDE FOR THE

Raising of Fruits for Pleasure or Profit

BY R. H. HAINES.

Paper, 84 pp., 8vo, price 30 cents; mailed post-paid on receipt of price. Address,

CHAS. H. MAROT,
814 CHESTNUT STREET, PHILA.

ROSES IN POTS;

observations on their Cultivation including the Autobiography of Pot-Rose,

by WM. PAUL.

92 pages, cloth, illustrated. Price, $1 00

Sent Prepaid by mail on receipt of price.

CHAS. H. MAROT, 814 Chestnut Street, Phila.

A MANUAL OF VEGETABLE PLANTS,

BY ISAAC F. TILLINGHAST.

Containing the experiences of the author in starting all those kinds of vegetables which are most difficult for a novice to produce from seed; with the best methods known for combating and repelling noxious insects and preventing the diseases to which garden vegetables are subject. 102 pages, 16mo, cloth, price, $1.00, mailed, post-paid, on receipt of price. Address,

CHAS. H. MAROT, 814 Chestnut St., Phila.

SECOND-HAND BOOKS

BY MAIL ON RECEIPT OF PRICE.

SPEAK QUICKLY IF YOU WANT THEM.

☞ Say in your order, "Second-Hand List." ☜

Allen's Domestic Animals	$ 75
" American Farm Book	1 00
" Rural Architecture	1 00
Beet Root Sugar, Grant	1 00
Bicknell's Village Builder & Supplement, Fol. (plates)	6 50
Bommer's Method of Making Manures	20
Brackett's Farm Talk	50
Breck's New Book of Flowers	1 45
Bridgeman's American Kitchen Gardener	50
Butler's Family Aquarium	50
Chavner's Diseases of the Horse	1 00
Coultas' Principles of Botany	50
Downing's Cottage Residences	1 25
" Landscape Gardening and Rural Archit..	4 50
" Rural Essays	2 85
Emmon's Agriculture of N. Y., 3 vols. 4to, plates, &c.	15 00
Fruit, Flower and Vegetable Gardener's Companion..	1 00
Fulton on Peach Culture	1 25
Grape Culture and the Strawberry, Buchanan	75
Green and Congdon's Botany, Quarto Illustrated	1 50
Half-hours in the Green Lanes, Taylor, Illustrated	1 75
Harris on Injurious Insects, colored plates	5 50
Hey's Mrs., Sylvan Musings, 28 col. plates, full calf	5 00
Hoffey's N. A. Pomologist (Dr. Brinkle) 36 col. plates, Quarto	8 00
Hooper's Western Fruit Book	1 00
" " " "	50
Klippart's Land Drainage	1 25
Lee's Mrs., Trees, Plants & Fl'rs col. plates, full calf.	6 00
Lee's Mrs., Trees, Plants & Flowers col. plates, cloth..	4 50
Liebeg's Turners' Chemistry, 1894 pp., 8vo	3 50
Loudon's Encyclopædia of Gardening, ½ turkey	10 00
MacDonald's Food from the Far West	2 00
Mayhew's Illustrated Horse Management	2 50
Merrick's Strawberry Culturist	50
McIntosh's Orchard, with colored plates	3 00
Minot's Land and Game Birds of New England, Ill'd..	2 50
New American Gardener	75
Parson's on the Rose	1 15
Paxton's Hort. Register, 2 vols. in one (1831-1833)	1 00
Philadelphia Business Directory, 1879, Boyd	25
Prince on the Vine	75
Prince's Pomological Manual	75
Randall's Sheep Husbandry	1 25
Rand's Flowers for Parlor and Garden, cloth	2 25
" " " ½ tky, gilt edges	2 50
Riddell's Architect, folio, 14½x17½ (col. plates)	10 00
Scribner's Log Book	20
Stewart's Stable Book	1 25
Studies, by J. A. Dorgan	75
Talpa, or Chronicles of a Clay Farm	75
The Plant, a Biography, 5 col. plates and 13 wood eng's	2 50
Thomas' Fruit Culturist	1 75
Todd's How to Make Farming Pay	2 00
Tull's Horse-hoeing Husbandry	1 00
Waring's Elements of Agriculture	75
Williams' Window Gardening	1 25
Woodruff's Trotting Horses of America	2 00
Young Angler Illustrated	75

Address, **CHAS. H. MAROT,**
814 Chestnut Street, Phila.

Codling Moth, Nevada, 81
" " Paris Green for, 180
" " War on, 47
Coffee Substitute, 29
Cold Weather, Fires in, 41
Collections, Botanical, 119
Colorado, White Spruce in, 89
Combination Fences, 293
" Plants, 293 [300
Combustion, Spontaneous,
Coming Potato, 47
Como Onion, 113 [277
Common Names, Coniferæ,
Communications, Delayed, 157
Comparative Age of Apple Trees, 204 [32
Competitive Exhibits, Fruits,
Compliment to I. Bush & Sons, 155 [282
Composites, Self-fertilization,
Concord Grape, Var., 342
Concrete Walks, 228
Condition Am. Gardeners, 216
Conductors, Trees as, 338
Confederate Rose, 103
Confederation, Phylloxera, 29
Congress, Am. Forestry, 128
Coniferæ, Rocky Mount., 277
Coniferous Trees, Pruning, 35
Consumption, Smoke, 355
Contagion, Bacterian, by Insects, 147
Contributions, Botany, 28
Convention, Berne, 29
" Forestry, 50
Cool House Orchids, 105
Coreless Apple, 18
Cornelia Strawberry, 240
Correspondents. Favors to, 320
Corsican Pine, 209
Cost, N. J. Forest Fire, 366
" Planting Trees West, 243
Cotton Caterpillar, 5
Cottony Cushion Scale, 119
Crawford's Early Peach, 365
Cresses, Water, 77
Crested Iris, 197, 259
Criticising the Editor, 157
Crocus, Blue, 229 [is, 300, 301
Crossandra infundibuliform-
Crossing, Effect on Fruit, 305
" Species, Strawberry, 143
Croton candatus tortilis, 171
" illustris, 268, 269
Crotons, New & Beautiful, 170
Crow's Nests, 245
Cryptogamic Exhibit, 352
Cultivated Aquatic Plants, Enemies, 99
" Plants, Introduction, 379
Cultivation, Mangrove, 57
" Osiers, 111
" Soil, 289
Culture, Amaryllis, 299
" and Care, Roses, 165
" " Smoke, 324 [ful, 8, 64
" Chrysanthemum, Skil-
" Dandelion, 180
" Grape, 274
" Hop, 143
" Mignonette, Winter, 360
" Pitcher Plants, 230
" Plum, 179
" Rose, 98, 101
" Silk, 208
" " Chart, 125
" Trees in Grass, 336 [288
Cumb'd Triumph Strawb'y,
Curculio and Plum, 334
" Remedy, New, 306
" Shaking, Inventor, 379
Cure, Mealy Bug, 175, 306
" Poison Vine Injury, 213
" Yellows, 306
Curl, Peach, 206
" " Burning, 274
" " in Indiana, 206
Currant Grape, 205
" White Black, 113
" Worm, 240
Currants, 29
" and Grapes, 274
" Profits of, 19
Cut Flowers, Dahlia for, 299
" " Preserving, 9
" " Transportation, 120
Cuthbert Raspberry, 80
Cuttings, Lemon Verbena, 331
Cymbidium sinense, 175
Cypripedium for Name, 191
" microchilum, 280
Cypripediums, 174, 175

Dahlia for Cut-flowers, 299
Dakota Bad Lands, 277
" Caterpillar, 84
" Forestry, 20, 50
" Tree Planting, 114
Dana, C. A., Residence, 56
Dandelion Culture, 180
Day, Arbor, 146
Dead Limb Evaporation, 151
Death, Bentham, Geo. 349
" Berkmans, Dr. L. E., 30
" Buckley, Prof. S. B., 124
" Clapp, Lemuel, 318
" Engelmann, Dr. Geo., 92, 124, 221
" Faul, Augustus, 319
" Fendler, Aug., 253
" Flagg, Wilson, 221
" Fournier, Dr. E., 284
" Gœppert, Dr., 253
" Grœnwegen, J. C., 253
" Hayes, F. B., 348, 382
" Lavallée, Alphonse, 190
" Leonard, Miss E. J., 284
" Maule, Mr., 221
" McIntosh, A., 30
" Phelps, Mrs. A. L., 253
" Price, Ell K., 376
" Sargent, Ignatius, 318
" Schaffer, Wm. L., 284
" Verschaffelt, Jean, 190
" Wilder, Jr., M. P., 221
" Williamson, Jno., 318
Decays, Why Timber, 117
Decoration, Floral, 10
Delayed Communications, 157
Delphinium formosum, 227
Dendrobium, Pierardi, 134
" Wardianum, 106
Dendrobiums, 174 [175
Dendrochilum glumaceum,
Dennison, Tex., Grapes, 18
Depredator, Apricot, 274
Describing New Fruits, 32
Designs & Flow'g Plants, 95
Desk Tool, New, 61
Destroy Cabbage Worms, To,
Destroying Insects, [45, 47
Hot Water, 189
Destruction, Forest, 84
" Leaf Buds, Roses, 40
" Mole, 87, 193, 195, 260, 268, 302, 356
Destructives, Harrisburg, 213
Dichroism in Grapes, 370
Dieffenbachia splendens, 41, 42
Diet Question, 254 [cus, 102
Dimorphanthus mandschuri-
Dinner Embellishments, 106
Disease, Clematis, 229
" Dwarf Almond, 198
" Fruit Trees, 365
" Lilies, 290 [279, 310
" Microscopic Fungi and,
" Rose Leaf, 357
" Winter Roses, 74
Diseases, Field & Garden, 330
Dish Cloth Gourd, 128
Distribution, Weed, 128
Dock, Yellow, as Food, 275
Dogs, London, 142
Dosoris, 58
Double Fl'd Hydrangea, 198
" Hydrangeas, 325
" Red-flow'd Plum, 6
" Spathed Calla, 25
Downing, A. J., 221
" Chas., 221
" Grape, 366
" Peach, 308 [ca, 349, 382
Downing's Fruits of Ameri-
Doyenné d' Eté Pear, 19
Dracæna Goldieana in Flower, 72 [319
Drugs and Medicines, N. A.,
" N. America, 191
Duke Rose, 200
Dull Weather on Flowers, 137
Duration, Plant Life, 60
Dwarf Almonds, 198
Dwarf Almonds, Disease, 198
" Oranges, 299

Early and Late Peas, 142
" Flowering Asters, 197
" Grapes, New, 272
" Peach, Crawford's, 365
" Potatoes, Getting, 15
Earth Almond, 204
Eastern Penna., Peaches, 80
East, Irrigation in, 142
Easy Way, Hybrids, 343
Eating Grapes, Bees, 24
Economy, Chinese, 244
Editing, Scientific, 279
Editor, Criticising the, 157
Editorial Letter, Harrisburg,
" Temper, 286 [91
Effect, Crossing on Fruit, 305
" Stock on Apple, 315
" Weather on Flowers, 137
Elize Sauvage, Tea Rose, 325
Elongate, Do Tree Trunks, 314
Embellishments, Dinner, 106
Empire State Grape, 272
Employers & Gardeners, 250,
Encouragement Skill, [28;
Exhibitions, 351
Enemies, Aquatic Plants, 99
Engelmann Dr., Death, 92, 124, 221
" " Grave, 317
" " Successor, 221
England, Am. Peas in, 48
" Beech in, Longevity, 209
" Monastery Garden in,
" Season in, 88 [252
" Tomatoes in, 113
" Victoria Regia in, 324
English Flower Garden, 93
" Gooseberries, 113, 204, 270, 272
" Oak for America, 183
" Peaches, Large, 204
" Roses, 323
" Sparrow, Penna., 25
" Walnut, 270
Enterprise Meat Chopper, 366
Epacris onosmæflora florepleno nivalis, 202
Epidendrums, 174
Epiphyllums, 139
Epiphyllum truncatum, 234
Epripremium mirabile, 340,
Erianthus Ravennæ, 343 [341
Errors, Typographical, 376
Esrog, 25, 53, 55
Etoile de Lyon Rose, 38, 103
Euadenia eminens, 370, 371
Eucalyptographia, 254
Eucalyptus Firewood, 20
" Growing, Profitable, 115
Eucharis Sanderii, 248
Eugenia Michelli, 300
Eugenie Verbena, 12, 37, 89
Europe, Am. Plants in, 60
" Export to, 222
" Phylloxera in, 240
" Sending Plants to, 218
" White Celeries, 365
European Bird Cherry as Stock, 18 [189
Evans, Chas. F., Greenhouses,
Evaporation, Dead Limb, 151
" Winter, 815
Evening Glory, 132
Everbearing Mulberries, 113
Evergreen Blackberry, 335, 366
" Hedge, Sea Coasts, 101
Evergreens, Hardy, 168
" Loss of Leaves, 249
Exacum affine, 24 [90
Exaggerating New Things,
Excelsior Fumigator, 78
Excursion, Wash'n Ter., 374
Exhibit, Cryptogamic, 352
Exhibition Fruits, International, 95
Exhibit. N.O., 159, 160, 192, 288
" Roses, 37
Exhibitions, Sales at, 128
" Skill at, 351
Exhibits, Fruits, 32
Exotic or Indigenous, 349
Experimental Notes, 67 [79
Experiment Native Potatoes,
" Oil, 362
Export to France, &c., 222
Express Packages, 28
Expressages Unpaid, 347
Extent, Land in Fruit, 334

Fairmount Park, 279, 316
" " Chrysanthemum Show, 224 [319
Fallacies, Progress & Poverty,
Fasciated Branches, 245
Fashionable Names, 348 [195
Fastening Climbers, Walls,
Faul, Aug., Death, 319
Favorable Conditions Weed Migration, 87
Favors to Correspondents, 320
February Orchids, 70
Fences & Walls, Climbers, 195
" Barbed Wire, 101
" Combination, 293
" Osage, Mice in, 230
Fendler, Aug., Death, 253
Ferns, 135, 172
" Propagation, 75
Fertilizers for Vegetables, 336
Fertilizing Moss, 64
Fertilization, Insect, 372
" Yucca, 281
Feverfew Variation, 229
Fighting the Phylloxera, 112
Fine Hothouse Grapes, 81
" Howell Pear, 364
" Keeping Pear, 206
" Mignonette, 203
" Seckel Pears, 337
" Night Bloom. Cereus, 235
Fires, Cold Weather, 41
" N. J., Cost, 366
" Forest, 207, 209
Firewood, Eucalyptus as, 20
First Appearance Yellows, 94
" Apple Tree, Br. Columb.,
Fir Tree Oil, 201 [213
Fish-catching Plants, 231
Five Acres Roses, 260
Flagg, Wilson, Death, 221
Flavor, Special to Fruits, 342
Floral Designs, N. Y. Hort. Soc., 31 [ner, 106
Floral Embellishments, Din-
" Monstrosities, 185 [125
Florida & Game Water Birds,
" Dispatch, The, 126
" Forest Trees, 244
" Palmetto in, 372
" Perfumes in, 341
" Shade Trees, 325
" Shell Mounds, 312
" Vanilla Plants, 373
Florists, Am. Society, 255, 351
" Work, Dahlia for, 299
Flues & Plans, Greenhouse,
Flower Beds, Mosaic, 6 [201
" Double Hydrangea, 198
" Dracæna Goldieana in, 72
" Garden and Pleasure Ground, 1, 33, 65, 97, 129, 161, 193, 225, 257, 289, 321, 353
Flower, Orchids in, 174
" Pot, Broken, Use, 266
" Asters, Early, 197
" Century Plants, 43
" Climbing Hydrangea, 259, 323, 325, 352
" of Agave, 245
" Plants and Designs, 95
" " Mo. Bot. Gardens, 300
Flowering N. Bl. Cereus, 300
Flowers & Fruits, Names, 288
" at Boston, 256
" " Parties, &c., 10
" Bible, 378
" Cemetery, 68
" Clover, Imperfect, 283
" Cut, Preserving, 9
" Dull Weather on, 137
" Gladiolus, 106
" Growing in Moss, 12
" in America, 235
" Mourning, 10
" Subterranean, 348
Food, Canna Roots for, 335
" Instincts, Animals, 310
" Yellow Dock as, 275
Fools and Knaves, 218
Forced Vegetables, Fertili-
Forcing Lilacs, 175 [zers, 336

Forcing Strawberries, 142,181
Forest & Botanical Work, 382
" Fires, Cause, 207, 208
" " Cost in N. J., 366
" Planting, 208
" " Company, 309
" Products, Alaska, 210
" Trees, Florida, 244
Forestry, 19, 48, 82, 114, 143, 182, 207, 241, 275, 309, 338, 366,
" Bulletin, 191 [381
" Canadian, 309
" Congress, American, 128
" Convention, 50
" Dakota, 20, 50
" Destruction, 84
" Japan, 367
" Literature, 146
" Practical, 295
" Scotland, 21, 83
" Woods and, 31
Forests, American, 241
" Pontius Pilate and, 348
" Rainfall and, 116, 338
" Soils and, 144
" West Va., 210
" Worrying over, 207
Foretelling Weather, 120
Forsythea suspensa, 169
Fournier, Dr. E. Death, 284
Fox-glove, Word, The, 213, 249
Fragmentary Gossip, 345
France, Am. Peaches in, 204
" Export to, 222
" Phylloxera in, 18
Francis B. Hayes Grape, 272
Francisca exima, 40
Fraud in Apple Packing, 112
Freaks of Nature, 215
Freezing Sap, 89, 152 [377
French Market Gardeners,
" Roses, New, 328
Friend Mole, 322
Fringe, White, 197
Fruit and Markets, 142
" " Veg. Gardening, 13, 44, 76, 109, 140, 177, 205, 237, 269, 302, 332, 362
" Crossing, Effect, 305
" Growers' Soc., Ont., 351
" Growing, Oregon, 306
" Land in, Extent, 334
" Nettle Tree, 309
" Notes, Western, 304
" Prospects, San Fran., 241
" Tree Troubles, 335
" Trees, Diseases, 365
Fruiting Akebia quinata, 356
" Carob, 251
" Carolinea alba, 332
" Rosa rugosa, 294 [365
Fruits Amer., Small, Japan,
" and Flowers, Names, 286
" Competitive, 32
" Insects on, N. C., 337
" International Exhibit, 95
" Long & Harsh Names, 80
" New, Naming, 32
" " Patents on, 348
" " Raising, 48
" Nomenclature, 32
" Persian, Some, 90
" Preserving Liquid, 241
" Special Flavor to, 312
Fuchsia, A Twin, 187
" Pure White, 41
Fumigator, Excelsior, 78
Fungi and Disease, 279, 310
Fungus, Potato, & Allies, 86
Furze, Lines on the, 26

Galium pisiferum, 29
Galls, Rose, 281
Game Fish of the North, 254
Garden and Farm Topics, 223
" Beauty, 68, 133
" Hunnewell's, Boston, 325
" Michaux, Charleston, 157
" Tropical, 225
" Troubles, Victoria, 261
Gardeners & Employers, 250, 286
" " Gardening, 286
" " Situations, 255
" Market, French, 377
" Old Time, 190 [293
Gardening, Am., Ancient, 219,
Gardening, Paradise of, 6
Gardens, Public, Sunday, 133
Garretson Strawberry, 335
Gathering Raspberries, Market, 180
Geology, Shore Ice in, 86
Georgia, Black Walnut in, 146
" State Hort. Soc'y, 61
Geranium Heteranthe, 290
" Seedling, 332
Geraniums, Notes on, 136
" Rose Scented, 29, 39
" Scarlet, 139
Germ'ntn Hort. Soc'y, 31, 160
Germicides and Bactericides, 16, 85, 237
Giving Flavor to Fruits, 342
Gladiolus Flowers, 106
Glass, Peaches Under, 111
" Setting, 105
Glastonbury Thorn, 123
Glazing Greenhouses, 75
Glimpses, Amazon & Nile, 2
Glory, Evening, 132
" Pea, 228 [102
Gnaphalium decurrens, 101,
Gobo or Burdock Roots, 47
Godey's Lady's Book, 223
Gœppert, Dr., Death, 253
Golden Matricaria, 322
Good Climbing Roses, 324
" Economy, Chinese, 244
" Strawberries, Two, 238
" Tree Plant'g, What is, 305
Gooseberries, English, 113, 204, 270, 272
Gooseberry Jelly, 204
Gossip, Fragmentary, 345
Gourd, Dish Cloth, 128
Govt. & Market Produce, 320
" Grounds, Ottawa, 87
Graft, Apple Stock on, 315
" Hybrids, 205
Grafted Grape Vines, 179
Grafting Apples on Pears, 47
" Oranges, Stock for, 299
Grand Old Trees, 209
Grape, Concord, Var., 342
" Culture, 274
" Currant, 215
" Downing, 366
" Empire State, 272
" Francis B. Hayes, 272
" Lindley, 346
" Longevity, 281
" Lutie, 307
" Moore's Diamond, 336
" Products, Cal., 80
" Rot, 308
" Vines, Catalogue, 30
" " Grafted, 179
" Woodcock, 336
Grapes and Currants, 274
" Bees Eating, 24
" Cochin China, 241 [at, 13
" Denison, Tex., Ripening
" Dichroism in, 370
" Fine Hothouse, 81
" for New England, 112
" Hardy East'n Mass., 333
" in West, 81
" New Early, 272
" Preserving, 271, 306
" Root Pruning, 113
" White, Some New, 364
" Wild, Nova Scotia, 314
Grass, Lawn, Sedges for, 322
" Needle in Texas, 334
" Pampas, 300
" Texas Blue, 167
" Trees in, 336
Grave, Engelmann, Dr., 317
" Pursh, Fred'k, 318
Greenhouse & House Gardening, 7, 38, 70, 103 134, 170, 199, 231, 263, 294, 326, 357
" Benches, 138
" Flues and Plans, 201
" Shading Mixture, 265
Greenhouses, C. F. Evans, 189
" Glazing, 75
Green, Paris, 205
Groenwegen, J. C., Death, 253
Growing Eucalyptus, 115
" Flowers in Moss, 12 [77
" Japan Persimmon, Tubs,
Growing Lilies, 69
" Orchids, 31, 332
" Own Vegetables, 18
" Plants in Moss, 329
" Violets, 74 [tha, 340
Growth, Agave heteracan-
" So. Yel. Pine, Rapid, 208
" Trees West, &c., 242

Habits of Birds, 185 [231
Habrothamnus, Cluster'd,
Hand Bouquets, 9
" Weeder, Hazeltine's, 167
Hansell Raspberry, 240
Happy as an Owl in Ivy, 189
Hardest Wood Known, 366
Hardiness, Japan Maples, 290
" Spanish Chestnut, 181
Hardy Apples, 204
" Climbing Roses, 324
" Evergreens, 168
" Flowers, Boston, 256
" Grapes, East'n Mass., 333
" Mulberries, 143
" Plants, Notes on, 259
" Roses, 100 [213
Harrisburg, Destructives at,
" Editorial Letter, 91
" Rare Trees in, 133
Harsh Names for Fruits, 80
Harvey Davis Strawberry, 80
Hat Adornment, 139
Havana, Roses in, 169
Hawthorn, Apples on, 333
Hayes, F. B., Death, 348, 382
Healthful, London Smoke, 373
Heart Hybrids, 373
Heat and Water, 299
Heating and Hot Water, 136, 232, 234, 265, 269
" Steam, 175, 199, 265
Heavy Crop Artichokes, 308
" Yield, Apples, 365
Hedges and Barbed Wire, 36 162, 197, 198
" Cactus, 204 [Coasts, 101
" Evergreen for Sea
" Rose in Texas, 355
Height of Peas, 112
Hellopsis lævis, 355
Henderson's Celery, 13, 80, 81, 110, 113, 140
Herbarium, Cambridge, 55
Heterantha Geranium, 290
Hibiscus, Treatment, 75
Hickory Nuts, 182
Hints, Seasonable, 1, 7, 33, 38, 44, 65, 76, 97, 103, 109, 129, 140, 161, 177, 257, 263, 289, 289, 294, 321, 326, 353, 357
Historical Jottings Veg., 219
History, Honey-dew, 117
Holland Phylloxera Law, 60, 123
Honey Bee, Life Duration, 314
" Dew, History, 117
" Locust, 60 [152
Honeysuckle Apple, 55, 87, 118,
Hop Culture, 143
" Japan, 229
Hornet Raspberry, 302
Horse Chestnut, 211
" Radish, 113
Horses, Feed and Feet, 156
Hort. Dept., World's Fair, 288
" Exhibitions, Sales at, 128
" " Skill at, 351
" Impostors, 57,
" Joker, Messonier as, 317
" Soc's. 31, 62, 63, 94, 127, 158, 192, 223, 255, 287, 350, 383
" Society, Geo. State, 61
" " Germantown, 31, 160
" " Ills. State, 221, 284
" " Mass., 95, 158, 159, 222, 287, 288, 351, 384
" " Mich. State, 191
" " Minnesota, 284
" " Miss. Val'y, 128, 384
" " N. Y., 31, 32, 127
" " Ohio, 284
" " Penna., 158, 192, 383
" " " State, 32, 96
" " " Chrysanthemums, 94
" " Worcester Co., 155
" Ancient Am., 219, 293
Hose, Worn Out, Use, 355
Hothouse Grapes, Fine, 81
Hot Water Heating, 136, 222, 234, 265, 269
" " on Insects, 139 [265
" " Pipe, Low Pressure,
" " Pressure, 333
Hovenia dulcis, 133
Howell Pear, Fine, 364
How to Stop Moles, 37, 198, 195, 260, 263
Hunnewell's Garden, 325
Hybrid Anthuriums, 330, 331
" Lobelias, 356
" Orchids, 279
" Pear, Another, 142
" Perpetual Rose, New, 6
" Sarracenias, 58, 54
Hybridization, Asters, 378
Hybrids, Easy Way to Make,
" Graft, 205 [343
" Heart, 373
" Wheat and Rye, 278
Hydrangea as Tea Plant, 315
" Climbing, 222, 259, 323, 325
" Double Flowered, 198
" Hortensea rosea, 102
" Oak-leaved, 259
" scandens, 230
" Sports, 263
Hydrangeas, Double, 325

Ice as Geological Agent, 86
Ignorance, Blissful, 365
Illegal Plant Names, 157
Ills. State Hort. Soc., 221, 285
Immediate Effect Crossing Fruit, 305
Immortelle, A Rare, 101
Impatiens Sultani, 175, 176 [39
Imperatrice Verbena, 12, 37,
Imperfect Clover Flowers, 288
Imposters, Horticultural, 57
Improved Asparagus, 113
" Public Squares, 227
Indiana, Peach Curl, 206 [314
Indian Bread or Tuckahoe,
Indigenous or Exotic, 349
Industries, Southern, 283 [29
Information about the South,
Insecticide, Naphthaline as,
Insect on Apricot, 274 [282
Insects and Bacteria, 147
" Fertilization by, 372
" Hot Water on, 139
" on Fruits in N. C., 337
" Window Plants and, 12
Instincts, Food, 310
Internat'n'l Exhib. Fruits, 95
Introduction, Am. Plants, Europe, 60
" Cabbage Caterpillar, 205
" Cultivated Plants, 379
" Peen-to Peach, U. S., 61
Inventor, Curculio Shak'g, 379
Ipomœa Bona-nox, 250, 260
" grandiflora, 131, 250, 354
" Night-Blooming, 130
" noctophyton, 34, 182, 195
Iris, Crested, 197, 259
Irrigation in East, 142
Ivy, Happy as an Owl in, 189
" Leaves, 255 [108

Jan. Temperature, Saratoga,
Japan Am. Small Fruits, 335
" Forestry, 367
" Hop, 229
" Judas Tree, 70, 324
" Maples, 196, 259
" " Hardiness, 290
" Persimmon, 19, 47
" " in Tubs, 77
" " Norfolk, Va., 336
" Snowball, 197, 259
Jelly, Gooseberry, 204 [308
Jerusalem Artichoke, 189, 205,
Jewell Strawberry, 273 [153
Jewish Citron, 25, 53, 55, 127,
Jonathan Apple, 18 [cal, 219
Jottings Vegetable, Histori-
Judas Tree, Japan, 70, 324
" " White, 69
July, Celery in, 272

Kalmia, 228
" Poison, 88
Keeping Insects from Window Plants, 12

Keeping Pear, Fine, 206
Keller Strawberry, 278
Kieffer Pear on Quince, 274
Killing Cabbage Grubs, &c., 45, 47
" Canker Worm, 204, 207
" Mosquitos, 329
Kill Scale, To, 335, 364
Knaves and Fools, 218
Knot, Peach, 204 [15
Knowledge, Popular, Need,
Labarax Solution, 286
Lady Ingold Peach, 80
Lady's Hat Adornment, 189
Lælia anceps, 175
Lælias and Cattleyas, 39
Land, Extent in Fruit, 334
Landscape Gardener, Napoleon I as, 29
" Gardening, Cemeteries, 26
Larch in the West, 209, 276
Large Apple Tree, 335
" English Peaches, 204
" Pea, 81
" Peach, 205 [204
" Pear, Souv. du Congres,
" Potato Crop, 308
" Quinces, 366
" Trees, Some, 145
" Vs. Vineyard, 307
" Walnut Tree, 335
Larkspurs, Perennial, 325
Late and Early Peas, 142
" Cherries, 17
" Flowered Roses, 262
Lavallée A., Death, 190 [150
Lavatera arborea var., 149,
Lawns, Sedges for, 322, 355
" Weeds on, 229
Laws, Phylloxera, 376 [40
Leaf Buds, Roses, Destroying,
" Disease, Rose, 357
Leaves, Evergreen, Loss, 249
" Ivy, 255
Legible Signatures, 126
Lemmon, Prof., Notes, 21, 155
Lemon Verbena Cuttings, 331
Lengthy Names, Fruits, 80
Leonard, Miss E.J., Death, 284
Les Clematites a Grandes Fleurs, 156
Lespediza bicolor, 133 [91
Letter, Editorial, Harrisburg,
Liberal Premiums, 32
Library, W. R. Prince, 31
Life Duration, Honey Bee, 314
" " Plants, 60
" Tenacity, 149
Light Cherry Plum, 274
Lightning, Trees, &c., 338
Lilacs, Forcing, 175
Lilac, Siberian, 325
Lilies, Biography, 319
" Disease in, 230
" Growing, 69
" Propagation, 201
" Rare Water, 133
Lilium auratum, 101
" Harrissi, 285
" Philippinensis, 246
Lily and Amaryllis, 247
Lima Beans, 48
Limb Evaporation, Dead, 151
Limestone, Chestnut on, 82
Lindley Grape, 337 [143
List Feb'y Orchids, 70
Literature of Forestry, 140
" Travels & Personal Notes, 28, 56, 90, 123, 153, 187, 216, 250, 283, 310, 344, 374
Little Excur., Wash'n Terr'y,
Lobelias, Hybrid, 356 [374
Loco Weed, 249, 278, 313
Locust, Canary Islands, 207
" Honey, 60
London, Dogs of, 142
" Smoke and Health, 373
Longevity, Beech in Eng., 209
" Grape, 281
" Trees, 209
Long Island, Season in, 25
" Names, Fruits, 286 [283
Lophospermum, Sanguinary,
Loss, Evergreen Leaves, 249
Louisa Plum, 338
Lotus, The, 350
Low Pressure Heating, 265
Lutie Grape, 307
Madeira and Other Nuts, 182
Magnolia Thurberi, 169
Mahogany, Varieties, 88
Mahonia aquifolia, 41
Mail Packages, Writing in, 255
Malformation, Rose, 249
Management and Pruning, 192, 258
" Public Works, 293
Manchester Strawberry, 228
Mangrove Trees, Culture, 37
Mantle, Virgin's, 190
Manure, Stable, 181
Man Wonderful, &c., 349
Maple Borer, 69
" Sugar, Oregon, 314
Maples, Japan, 196, 259
" " Hardiness, 290
Market Gardeners, French,
" Produce and Government, 320 [377
" Raspberries, Gathering,
Markets and Fruit, 142 [180
Marlboro Raspberry, 365
Marrow Squash, Boston, 204
M. P. Wilder Rose, 6
Mass. Hardy Grapes, 333
" Hort. Soc., 95, 158, 159, 222, 287, 288, 351, 384
Matricaria, Golden, 323
Mats, Russia or Bast, 220
Maule, Mr., Death, 221
Maxillariæ, 175
May Beetle, 315
McIntosh, A., Death, 30
Mealy Bug Cure, 175, 308
Meehan, Thos., Bouvardia, 73
Meissonier, Hort'l Joker, 317
Melons, Alcohol from, 55
Menocher's Apple, 18
Mentzelia Floridana, 315
Merveille de Lyon Rose, 208
Mice in Osage Fences, 230
Michaux, Dr., 180
" Garden, Charleston, 157
Mich. Hort. Society, 191
Microscopic Fungi in Disease, 279, 310
Mignonette, Fine Var., 208
" Winter Culture, 360
Migration, Birds, 87
" Weeds, 87
Mimulus Seedling, 37
Minn. Hort. Society, 284
Minnewaska Blackberry, 278
Miss Buist Azalea, 108, 189, 175, 299
Miss. Valley Hort. Soc. 128, 384
Missouri Bot. Gardens, 309
" Pippin Apple, 308
" Strawberries, 278
Mistletoes, Notes on, 164
Mole Destruction, 37, 198, 195, 260, 263, 302, 322, 356
Moles and Castor Bean, 356
" One Who Likes, 293
Monastery Garden, Eng., 252
Monstrosities, Floral, 185
Montreal, Apple Notes, 112
Moore's Diamond Grape, 336
Mosaic Flower Beds, 6
Mosquitos, Killing, 329
Moss Fertilizing, 64
" Growing Flowers in, 12
" Plants in, 329
" Rose Seedlings, 258
Moth, Codling, Nevada, 81
" " War on, 47
Mourning Flowers, 10 [293
Mowers, Lawn, Bad Effects,
Mulberry, Everbearing, 113
" Hardy, 143
" Silk Culture, 208
Mushrooms, 77
Name, Cypripedium for, 191
" Specimen for, 286
" Veronica, Origin, 350, 382
Names, Fashionable, 348
" Fruits and Flowers, 286
" Fruits, Long & Harsh, 80
" Pears, 48
" Plants, 75, 82
" " Illegal, 157
" " Rules for, 127
Names, Popular, 191
" Reform in, 142 [ferse, 277
" Rocky Mountain Coni-
Naphtha and White Lead for Greenhouse Shade, 265
Naphthaline Insecticide, 232
Napoleon I. as Gardener, 29
Nat. Park, Yellowstone, 191
Native Plants, Catalogue, 223
" Flowers & Ferns, U.S., 125
" Potatoes, Experiment, 79
Natural History and Science, 21, 51, 84, 117, 147, 184, 211, 244, 278, 310, 339, 367
Natural Soil, Plants, 19
Nature, Apparent Waste, 87
" Freaks of, 215
" of Fasciation, 245
" Variations in, 310, 313
Needle Grass, Texas, 344
Need, Popular Knowledge, 15
Nepenthes Mastersiana, 106,
" Northiana, 11, 12 [107
Nettle Tree Fruit, 309
Nevada Codling Moth, 81
" Rose Pests, 263
New Albany, Pear from, 275
" American Raspberry, 307
" & Beautiful Crotons, 170
" Carnation, 74
" Celery, White Plume, 18
" Desk Tool, 61
" Early Grapes, 272
" England, Grapes for, 112
" " Orchids, 167, 285
" French Roses, 328
" Fruits, Patents, 348
" " Naming, 32
" " Praising, 48
" Hampshire Strawber-
" H. P. Rose, 6 [ries, 46
" J. Forest Fires, Cost, 366
" Orleans, World's Fair, 159, 160, 192, 288
" or Rare Plants, 12, 41, 69, 101, 106, 133, 169, 175, 197, 202, 229, 235, 269, 300, 330
" Plants, Three, 132
" Plants, What is, 293
" Potato, S. Ohroudil, 24
" Potatoes, So. Amer., 186
" Remedy, Curculio, 306
" Species Caryophyllaceæ.
" Potato Seeds, 123 [185
" Tea Rose, Rosalie, 12
" Things, Exaggerating, 90
" York Central Park, 229
" " Chrysanthemums, 62
" " Hort. Soc., 31, 32, 127
" " Violet, 70
" White Grapes, Some, 364
" Zealand Clover, 213, 249
Newer Chrysanthemums, 66
Nichols & Lorton, 221
Night Bloom. Cereus, 235, 279, 320, 327, 332, 373
" " Ipomœa, 130
Nile and Amazon Glimpses, 2
Nomenclature, Fruits, 32
" Wilder on, 96 [336
Norfolk Japan Persimmons,
North American States, 318
" Carolina Fruits, Insects,
" Pecans in the, 115 [337
" Spanish Chestnuts, 147,
Notes, Botanical, 247, 278 [183
" Caladium, 354
" Chew's Landing, 184
" Central Park, 229
" Chrysanthemums, 196
" English Walnut, 270
" Experimental, 67
" Fruit, 304
" Geraniums, 186
" Hardy Plants, 250
" Mistletoes, 164
" Native Potatoes, 79
" Nut Trees, 110
" Prof. Lemmon's 21, 155
" Orchids, 8, 328
" Summer, 291
Nova Scotia Wild Grapes, 314
Nurserymen's Am. Ass'n, 256
Nuts, Hickory, Chest. & Ma-
" Pea, 307 [deira, 182
Nut Trees, Queries, 50, 110
Oak, English, for America, 183
" Leaved Hydranges, 259
" White, 309
Obituary, 30, 92, 124, 190, 221, 253, 284, 318, 319, 348, 349, 371, 382
Odontoglossum vexillarium Rubellum, 360, 361
Ohio Horticult'l Society, 284
" White Doyenne Pear in,
Oil Experiment, 362 [112
" Fir Tree, 201
Old-Time Gardeners, 190
" Trees, Grand, 209
" World Window Plants,
Oleander, Poisonous, 324 [139
Olives in Texas, 308, 363
One Who Likes Moles, 293
Onion, Bermuda, 18
" Como, 113
" Odor, Avoiding, 366
Ont. Fruit Growers' Soc., 351
Open Air, V. Regia in England, 324, 355 [ther on, 137
Opening Flowers, Dull Wea-
" Gardens on Sunday, 133
Oranges, Dwarf, 299
" Stock for, 299
Orchid Blocks and Pans, 74
" Growing Progress, 31, 32
Orchids, 235
" April, 137
" Cambridge, Mass., 174
" Catalogue, 30
" Cool-house, 105
" February List, 70
" Hybrids, 279
" New England, 167, 255
" Notes, 8, 328
Oregon Fruit Growing, 306
" Maple Sugar, 314
Origin, Apricot, 53
" Best Roses, 29
" Disease from Fungi, 279
" Name Veronica, 350, 382
" Petunia, 360
" Word Fox-glove, 218, 249
Osage Fences, Mice in, 230
" Orange for Silk Worms,
Osiers, Cultivation, 111 [205
Osmunda Japonica corymbifera, 168, 169
Other Days Recollections, 157
Ottawa Gov't Grounds, 37
Oxalis Deppei, 258 [ing, 360
" floribunda, Propagat-
Ozone and Vegetation, 218
Packages, Prepaying, 28
" Unpaid, 347
Packing Apples, Frauds, 112
Paeonies, Single, 197
Painting Tree Wounds, 294
Palliser's Useful Details, 136
Palmetto and Uses, 339
" in Florida, 372
Palms, Treatment, 299
Pampas Grass Plumes, 300
Pansies, 167, 255
" Carnations, Violets, 356
Pans, Orchid, 74
Paper, Chinese, 25
Paradise Apple, 55
" of Gardening, 6
Parasites, Microscopic, 279, 310
Paris Green, 205, 278
" " for Codling Moth, 180
Park, Fairmount, 279
" Yellowstone, 191 [316
Parks, Phila., 154, 227, 279, 282
Parry Strawberry, 240
Parties, Flowers at, 9 [348
Patent Rights, New Fruits,
Peach, Amsden, 19
" Buds, 151
" Crawford's Early, 365
" Curl, 206
" " Indiana, 206
" Downing, 308
" Knot, 204
" Lady Ingold, 80
" Large, 205
" Leaves, Burning, 274
" Peen-to, in U. S., 61
" Reed's Early Golden, 308
" Root Aphis, 271, 274, 303,
" Tree, 206, 219 [336
" Trees, Budded, 113

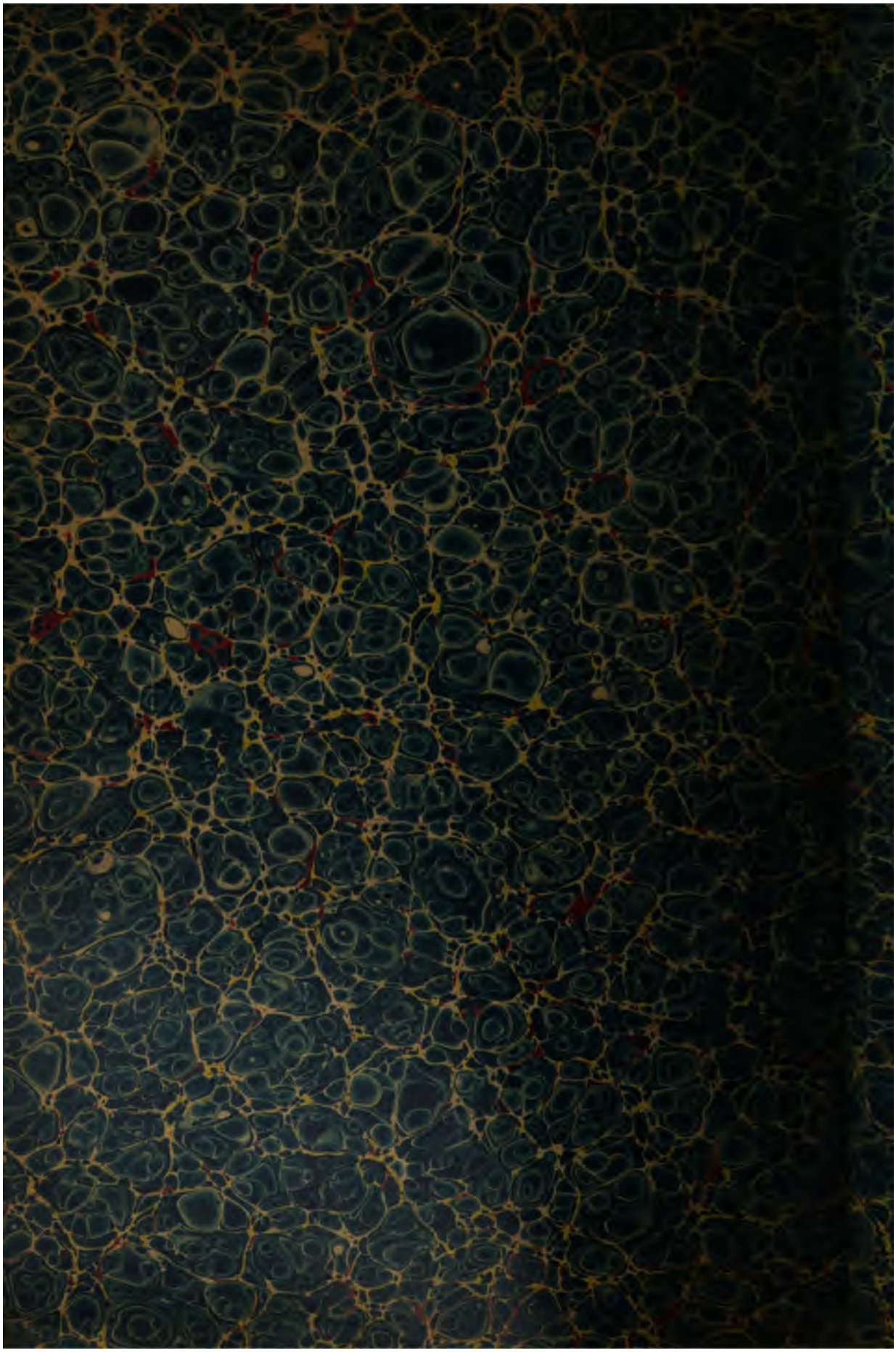
Peach Trees in Sod, 81
" Worm, 179
" Yellows and Bacteria, 85
" " First Appearance, 94
" " Potash for, 181
Peaches, American, France,
" Eastern, Pa., 80 [204
" Large English, 204
" Under Glass, 111
Pea, Glory, 228
" Large, 81
" Nuts, 307 [287, 308
Pear Blight & Bacteria, 16, 85,
" " California, 204
" Doyenne d' Ete, 19
" Fine Keeping, 206 [336
" from Brookfield, Mo.,
" " New Albany, 275
" Howell, Fine, 364
" Hybrid, Another, 142
" Kieffer on Quince, 274
" Sha-lee, 19
" Souv. du Congres, 204
" Wh. Doyenne, Ohio, 112
Pears as Cattle Feed, 47
" Grafting Apples on, 47
" Names of, 48
" Reports on, 223, 224
" Seckel, Fine, 337
Peas, Early and Late, 142
" Heights of, 112
Pecans in the North, 115
Peculiar Variations, 310
Peen-to Peach, U. S., 61 [25
Penna., English Sparrow in,
" Hort. Soc. 94, 158, 192
" " " State, 82, 96
" Peaches, 80
" Phylloxera in, 343
" State College, 224 [229
Pentstemon, Sweet-scented,
Perennial Larkspurs, 325
Perfumes, Florida, 341
Perle d' Or Rose, 262
Peronospora sparsa, 212
Persian Fruits, Some, 90
Persimmon, Japan, 19, 47
" " in Tubs, 77
" " Norfolk, 336
Pests, Rose, Nevada, 263
Petunia, Origin of, 360
Phalænopsis, 174
" Esmeralda, 327
" Schilleriana, 106, 174
Phelps, Mrs. A. L., Death, 253
Phila. Acad. Nat. Sciences, 149
" Chrysanthemums, 62
" Pub. Parks, 154, 227, 279, 292, 316
" Rose Rot, 211, 267, 350
" Suburbs, 5 [des, 44
Phyllanthus, nummularoi-
Phyllocactus grandis, 373
Phylloxera, Berne People &,
" Confederation, 29 [122
" Fighting, 112
" in Australia, 112
" " Europe, 240
" " France, 18
" " Penna., 343
" Law, Holland, 60, 123
" Laws, 376
Picea ajanensis, 169
" Omorika, 133
Pine, Corsican, 209 [124
" Grove Cemetery, Boston,
" So. Yellow, Growth, 208
" Umbrella, 69
" White, Another, 146
" " W. Va., 309 [214
Pink Beauty Rhododendron,
" Rhododendron maximum, 263
Pinus edulis Timber, 244
Pitcher Plants, Culture, 230
Plans & Flues, Greenhouse, 201
Plant Analysis, Groff's, 125
" Benches, Cementing, 72
" Cryptogamic Exhib., 352
" Culture & Smoke, 324
" Life, Duration, 60
" Names, Rules, 127
" New, What is, 293
" Tonga, 340, 341
" Vanilla, 332
Planting, Forest, 208
Planting Forests Co., 309
" " Scotland, 21, 83
" Timber, Value, 84
" Tree, Dakota, 114
" " West, 208
" " " and Cost, 242
" " What is Good, 305
Plants and Roses, Bedding, 43
" Aquatic, Enemies, 99
" Australian, 295
" Beds and Borders, 36
" Century, Flowering, 43
" Combination, 293
" Cult., Introduction, 379
" Fish-catching, 281
" Flowering & Designs, 95
" Hardy, Notes on, 259
" Illegal Names, 157
" in Moss, 329
" Names of, 75, 282
" Natural Soil, 19
" Poisonous, 249
" Propagating, 193 [300
" Rare, Mo. Bot. Gardens,
" Strawberry, Sex Change,
" Three New, 182 [87
" to Europe, Sending, 218
" Water, 369
" Window, 139
" Winter Blooming, 202
Plum and Curculio, 334
" Cherry, Light, 274
" Culture, 179
" Double Red-flowered, 6
" Louisa, 338
" Prunus Pissardi, 6
" Rocky Mountain, 336
Plumes, Pampas, 300
Poet and Birch Tree, 190
Poison, Kalmia, 88
" Lily, 24
" Vine Injury, Cure, 213
" What is, 151
Poisonous Oleander, 324
" Plants, 249
Pomol. Soc., Amer., 32, 222,
Pontius Pilate, 348 [250
Poor Man's Plaster, 315
Popular Knowledge, 15
" Names, 191 [375
Portrait W. D. Brackenridge,
Potash for Yellows, 181
Potato, Coming, The, 47
" Crop, Large, 308
" Fungus and Allies, 86
" New, S. Ohrondii, 24
" Seeds, New Species, 123
Potatoes, Arizona, 84
" Early, 15
" Native, Experiment, 79
" New So. America, 186
Pot-grown Chrysanthemums, 128, 160
Powdered Tobacco for Aphis,
Prairies, Timber on, 182 [229
" " Absence, 187
" Trees on, 146
Praising New Fruits, 48
Premiums, Liberal, 32
Prepared Moss, Flowers in, 12
Prepaying Packages, 28
Preserving Cut Flowers, 9
" Fruits, Liquid for, 241
" Grapes, 271, 306
Pressure, Hot Water, 332
Price, Eli K., Death, 376
Prices, Forest Seedlings, 243
Primula obconica, 313
Prince, W. R., Library, 31
Prodigious Strawberries, 203
Production, Strawberry, 271
Products, Alaska Forest, 210
" California, Grapes, 80
Profitable Eucalyptus Grow-
" Vegetables, 113 [ing, 115
Profits of Currants, 19 [332
Progress, Orchid Growing, 31,
Pronunciation, Veronica, 381
Propagating Bouvardia, 235
" Oxalis floribunda, 360
" Plants, 198
Propagation of Ferns, 75
" " Lilies, 201
Prospects, Am. Gardens, 216
Protecting Cherries from
" Roses, 325 [Birds, 307
Protecting Strawberries, 307
Protective Hedges, 13, 162,
Prunes, 365 [197, 198
Pruning Coniferous Trees, 35
" Root, Grapes, 113
" Trees, &c., 192, 258
Prunus Padus for Cherry, 141
" Pissardi, 6
Ptelea aptera, 151
Public Gardens, Sunday, 133
" Parks, Phila., 154, 227, 279, 292
" Works, Management, 293
Pump, Boy-power, 324
Purple-leaved Plum, 6
Pure White Fuchsia, 41
Pursh, Fred., Grave of, 318
Pyrethrums in California, 46
Pyrus Maulei, 70, 221

Queen of Queens Rose, 197
Quercus lobata Wood, 147
Queries, Nut Trees, 50
" Roses, 215
Quince, 81
" Kieffer Pear on, 274
" Welch's Prolific, 308
Quinces, Large, 366

Radish, Horse, 113
Rainfall & Forests, 116, 338
" in Atlantic U.S., 55
" " West, 123
Ramble to Sudbury Park, 58
Rancocas Raspberry, 273, 307
Range of White Spruce, 49
Rapid Growth, So. Yel. Pine,
Rare Botanical Lib'y, 258 [208
" " Works, 254
" Immortelle, 101 [300
" Plants, Mo. Bot. Gardens,
" Trees, Harrisburg, 133
" Water Lilies, 133
Raspberries for Market, 180
" New American, 307
" Soil for, 180
Raspberry, Cuthbert, 80
" Hansell, 240
" Hornet, 302
" Marlboro, 307, 365
" Rancocas, 273, 307
Reading, J., Nurseries of, 190
Recollections, Australian Plants, 295
" Other Days, 187
" Ramble, 58
Red-flowered Plum, 6 [308
Reed's Early Golden Peach,
Reform in Names, 142 [210
Rejuvenating an Old Wood,
Relation, Soil to Trees, 20, 82, 148, 207
Reliable Apples, Two, 80
" Seeds, 157
Remarkable Var. Grape, 342
" Vitality, 120 [85
Remedies, Blight & Yellows,
Remedy, Aphis, 229
" Curculio, 306 [263, 302
" Moles, 37, 193, 195, 260,
Reply to Mr. Wooding, 96
Reports, Census, 92
" Hort. Societies, 223
" Pears, 223, 224 [Soc. 256
Republic Co., Mich. Hort.
Residence, C. A. Dana, 56
Retinospora plumosa aurea,
Rheum collineum, 69, 70 [197
Rhododendron Borer, 357
" maximum, Pink, 213
" Pink Beauty, 214
Rhododendrons, 197, 213
" Boston, 256
Richardia Æthiopica, 299
" from Seed, 39, 299
Richmond, Ind., Winter, 214
Rights, New Fruits, 348
Ripening Grapes, Denison,
Robin Adair, 218 [Tex., 13
" Proof Cherry, 273
Rocky Mountain Coniferæ,
" " Plum, 336 [277
Root Pruning Grapes, 113
Roots, Aphis on, 271, 273, 308,
" Canna, for Food, 335 [336
" Grubs at, To Kill, 45
Rosa Carolina, 355
" polyantha, 186
Rosa rugosa, 228, 294
" villosa, 229 [178, 231
Rose, André Schwartz, 7, 104,
" Catherine Mermet, 133
" Confederate, 103
" Culture, 98, 101
" Elize Sauvage, Tea, 325
" Ellwanger on, 126
" Etoile de Lyon, 38, 103
" Galls, 281
" Geraniums, 29, 39
" Hedges, Texas, 355
" Leaf Disease, 357
" Malformation, 249
" Merveille de Lyon, 208
" M. P. Wilder, 6
" New Tea, Rosalie, 12
" Perle d'Or, 262
" Pests, Nevada, 263
" Queen of Queens, 197
" Rot, Phila., 211, 267, 350
" Secretary Nicholas, 169
" Sunset, 74, 200 [201, 298
" Wm. F. Bennett, 104, 200,
" Within Rose, 123
Roses, About, 181, 215
" and Bedding Plants, 43
" " Climbers, 163
" at Auburn, 323
" " Boston, 256
" Attar of, 343
" Best, Origin, 29
" Care and Culture, 65
" Duke, Bennett and Sun-
" English, 323 [set, 200
" Exhibition, 37
" Five Acres, 260
" for Buffalo, N. Y., 102
" Good Hardy Climbing,
" Hardy, 100 [324
" in Havana, 169
" " Winter, 350
" Late Flowered, 262
" Leaf Destruction, 40
" New, French, 328
" Protecting, 325
" Queries, 215
" Seedling Moss, 258
" Sports from, 356
" Troubles with, 34
" Winter Bloom., Budding, 73, 329 [74
" Winter Bloom., Disease,
Rot, Grape, 308
Rules for Plant Names, 127
Rum, Bay, 372
Running Out, Strawberries,
Rural New Yorker, 284 [335
" Taste, 380
Russia Mats or Bast, 220
Rye and Wheat Hybrids, 278

Sales at Hort. Exhib., 128
Salix cordata, Wood of, 49
Salome Apple, 80
Salvia interrupta, 12
Salt Lake City Nurseries, 190
San Francisco Fruit, 241, 283
Sanguinary Lophospermum,
Santa Cruz, Weeds at, 238
Sap, Freezing in Trees, 89, 152
Saratoga Temperature, Jan.,
Sargent, Jg., Death, 318 [108
Sarracenia formosa, 55
" melanorhoda, 55
Sarracenias, Hybrid, 53, 54
Saunders, Wm., Letter, Ont., 348
Scale, Cottony Cushion, 179
" To Kill, 335, 364
Scarlet Geraniums, 139
Scented " 29, 39
Schaffer, Wm. L., Death, 284
Schomburgkia undulata, 175
Schweinderer, Dr., 221
Science, Advertising, 284, 344
" or Art, Agriculture, 118
Scientific Editing, 279
Scotland Forest Planting, 21,
Seacoast Hedges, 101 [83
Search of Cactuses, 51
Season in England, 88
" " Long Island, 25
Seckel Pears, Fine, 337
Secretary Nicholas Rose, 169
Sedges for Lawns, 322, 355
Seedling Begonias, 106, 134
" Bouvardia, 43

Seedling Geranium, 332
" Mimulus, 37
" Moss Roses, 258
Seed, Richardia from, 39, 299
Seeds, New Potato, 123
" Reliable, 157
Self-blanching Celery, 81, 141
" fertilization Composites, 282
Sending Plants to Europe, 218
Setting Glass, 105
Seventy-five Apples, 350
Sexes, Chestnut Trees, 145
Sex, Strawberry, Change, 87
Shading Greenhouses, 265
Shade Trees, Florida, 325
Shaking Curculio, Inventor,
Sha-lee Pear, 19 [379
Shell Mounds, Florida, 312
Shore Ice in Geology, 86
Shows, Chrysanthemum, Boston, and Phila, 94, 383
Siberian Lilac, 325
Sierras, Snow Plant of, 89
Signatures, Legible, 126
Silk Culture Chart, 125
" " Mulberry, 208
" Worms, Osage for, 205
Single Chrysanthemums, 102
" Pæonies, 197
Situations, Gardeners, 255
Skill, Encouragement, Exhibitions, 351 [64, 96
" in Chrysanthemums, 8,
Small Fruits in Japan, 365
Smoke & Plant Culture, 324
" Consumption, 355
" London, 373
Snowball, Japan, 197, 259
Snowdrop Trees, 294
Snow Plant, Sierras, 89
Sod, Peach Trees in, 81
Society Am. Florists, 256, 351
Soil, Choice by Trees, 20, 82, 143, 207
" Cultivation of 239
" for Plants, 19
" " Raspberries, 180
Soils and Forests, 144
Solanum Ohrondii, 24, 122
Solution, Labarax, 286
Some Large Trees, 145 [186
South Am. Potatoes, New,
" Information, 29
Southern Cultivator, 30
" Industries, 283
" Pine Growth, 208
Souv. du Congres Pear, 204
Spanish Chest., Hardiness, 181
" " North, 147, 183
Sparrow, Eng., in Penna., 25
Species, Crossing, 143
" New Caryophyllaceæ, 185
Specimens for Name, 286
Spontaneous Combustion, 300
Sports, Hydrangea, 263
" Roses, 356
Spruce, Blue, 209
" White & Black, 114
" " Colorado, 89
" " Range of, 49
Squares, Phila., 154, 227
Squash, Boston Marrow, 204
Stable Manure, 181
Stakes, Tomatoes to, 18
Star Verbena, 12
State College, Penna, 224
Statice Suworrowi, 6, 7
Steam Heating, 175, 199, 265
Stellaria aquatica, 25
Stephanotis floribunda, 286
Stock, Eu. Bird Cherry, 18
" for Apricot, 142 [141
" Cherry, Prunus Padus,
" Grafting Oranges, 299
" on Apple, Effect, 315
St. John's Bread, Fruiting, 251
Strawberries, Forcing, 112, 181
" Missouri, 273
" New Hampshire, 46
" Prodigious, 263
" Production, 271 [307
" Protecting from Birds,
" Running out, 335
" Two Good, 238
Strawberry, Abnormal, 215
Strawberry, Atlantic, 240
" Big Bob, 335
" Change of Sex, 87
" Cornelia, 240
" Crossing Species, 143
" Garretson, 335
" Harvey Davis, 80
" Jewell, 273
" Keller, 273
" Perry, 240
Substitute for Coffee, 29
Subterranean Flowers, 348
Suburbs, Phila., 5 [221
Successor, Dr. Engelmann's,
Sudbury Park, Eng., 58
Sugar from Yellow Wood, 183
" Oregon Maple, 314
Sulpho-carbonates for Aphis,
Sumac, 209 [272
Summer Notes, 291
" Rose, Beautiful, 355
Sunday Public Gardens, 133
Sunset Rose, 74, 200 [229
Sweet-scented Pentstemon,
Swindler Caught, 218
Tabernæmontana, 200
Tame Toads, 203
Tan Bark, Wattles for, 367
Tanning Material, California,
" Yucca for, 315 [309
Tar, Coal, 181
Tea, Blue Mountain, 279
" Few Words About, 178
" Plant, Hydrangea as, 315
" Rose, Elize Sauvage, 325
" " Etoile de Lyon, 38
" " Rosalie, 12
Temperature, Average, 152
" Saratoga, 108
Temper, Editorial, 286
Tenacity of Life, 149
Texan Blue Grass, 167
Texas, Loco Weed in, 313
" Needle Grass, 334
" Olives in, 308, 363
" Rose Hedges, 355
Thermometer Test, 362 [90
Things New, Exaggerating,
Thorn, Glastonbury, 128
Thos. Meehan Bouvardia, 78
Three New Plants, 132
Timber Area, U. S., 277
" on Prairies, 182
" " " Absence of, 187
" Pinus edulis, 244
" Planting, Value, 84
" Supply, California, 244
" Tree, Eng. Oak for Am.,
" Why Decays, 117 [183
Tinley Peach, 205
Toads, Tame, 203
Tobacco for Aphis, 229
Tomatoes in England, 113
" to Stakes, 18
Tonga Plant, 340, 341 [120
Transportation Cut-flowers,
Treatment, Chinese Hibiscus
" of Palms, 299 [75
Tree, China, 356
" Evaporation, Winter, 315
" Judas, White, 69 [207
" Locust, in Canary Isl'ds,
" Nettle Fruit, 309
" Peach, The, 208, 219
" Planting, Dakota, 114
" " West, 208
" " What is Good, 305
" Pruning, &c., 192, 258
" Trunks Elongate, Do, 314
Trees, Soil for, 20, 82, 143, 207
" Florida, 244
" Freezing Sap in, 89, 152
" Grand Old, 209
" Harrisburg, Rare, 133
" in Grass, 336 [338
" Lightning Conductors,
" Longevity, 209
" Nut, Queries, 50, 110
" on Prairies, 146
" Painting Wounds in, 294
" Peach, Budded, 113
" Pruning Coniferous, 35
" Sexes, 145
" Shade, 325
" Snowdrop, 294
" Some Large, 144
Trees, Street, 262 [242
" West, Growth & Cost,
Tropæolum peregrinum, 25
Tropical Garden, 225
Troubles, Fruit Tree, 335
" Garden, Victoria, B. C.,
" Rose, 34 [261
Truffles in America, 218
Tuberous-root Begonias, 35
Tubs, Jap. Persimmon in, 77
Tuckahoe, Indian Bread, 314
Turnips, Club Root in, 81
Twigs, Willow, Vitality, 120
Twin Fuchsia, 187
Two Good Strawberries, 238
" Reliable Apples, 80
Typographical Errors, 376
Ulex Europæus, 26
Umbrella Pine, 69 [238
Useful Weeds, Santa Cruz,
Uses, Palmetto and its, 339
Use, Worn Out Hose, 355
U. S., Peen-to Peach in, 61
" Rainfall in, 55
" Timber Area, 277
Utilized, Broken Pot, 286
Vacation Cruising, 222 [84
Value Timber Planting,
" Western Trees, 243
Vanilla Beans, 281
" Plant, 332
" Plants, Florida, 373
Variation, Concord Grape, 342
" Feverfew, 229
Variations in Nature, 310, 318
Variegated Begonia, 44
" Bitter Sweet, 357
Varieties, Mahogany, 88
" of Self-blanching Celery, 81, 141
" Wearing Out, 46
Variety, Mignonette, Fine, 203
Vegetable Bouquet, 235
" Cells, 22
Vegetables, Fertilizers for, 336
" Growing Own, 18
" Historical, 219
" Profitable, 113
Vegetation, Ozone and, 218
Verbena Cuttings, Lemon, 331
" Eugenie, 12, 37, 39
" Yellow, 263 [381
Veronica, Origin Name, 350,
" Pronunciation, 382
Verschaffelt, Jean, Death, 190
Victoria B. C. Garden Troubles, 281
" Regia in England, 324
" " " Open Air, 355
Vine, What is a, 283
Violet, New York, 70
Violets, Growing, 74
" Pansies, Carnations, 358
Virginia Vineyard, Large, 307
Virgin's Mantle, 180
Visit, C. F. Evans', 189
Vitality, Willow Twigs, 120
Von Muller, Baron F, 30, 190
Vresia speciosa, 73 [on, 195
Walls and Fences, Climbers
Walnut, Bl'k, Georgia, 146
" English, 270
" Tree, Large, 367
War on Codling Moth, 47
Wash'n Terr'y, Excursion, 374
Wash to Kill Scale, 335, 364
Waste in Nature, 87
Water and Heat, 299
" Cresses, 77
" " in Winter, 14
" Lilies, Rare, 133
" Plants, 369
Wattles for Tan Bark, 367
Wearing out Varieties, 46
Weather Effect, Flowers, 187
" Foretelling, 120
Weeder, Hazeltine's, 167
Weed, Loco, 249, 278, 313
Weeds, Distribution, 123
" Lawn, 229
" Migration, 87
" Useful, Santa Cruz, 238
Weeping Beech, Artistic, 101
Weigela floribunda, 261, 262
Welch's Prolific Quince, 308
Western Bad Lands, 277
Western Fruit Notes, 304
" States, America, 347
West, Grapes in, 81
" Larch in, 209, 276
" Rainfall in, 122
" Tree Planting in, 208
" Trees, Growth, &c., 212
" Va. Forests, 210
What is a New Plant, 233
" " Vine, 283 [ing, 294
" " Good Tree Planting,
" " Poison, 151
Wheat & Rye Hybrids, 278
White & Black Spruces, 114
" " Yellow Broom, 356
" Asparagus, 113
" Blackberries, 207
" Black Currant, 113
" Celeries, Europe, 365
" Doyenne Pear, Ohio, 112
" flowered Rosa rugosa,
" Fringe, 197 [294
" Fuchsia, Pure, 41
" Grapes, New, 364
" Judas Tree, 69
" Lead and Naptha for
" Oak, 309 [Shade, 295
" Pine, Another, 146
" " W. Va., 309
" Plume Celery, 30, 80, 81, 110, 113, 140, 274
" Spruce, Colorado, 89
" " Range of, 49
Whittier's Poem, 381
Why Timber Decays, 117
Wilbrandia drastica, 86, 87
Wilder, M. P., 60, 263 [ture, 96
" " " on Nomencla-
" " " Jr., Death, 221
Wild Grapes, Nova Scotia, 314
Williamson, Jno., Death, 318
Willow Twigs, Vitality, 120
Wilson Jr. Blackberry, 80, 272
Window Plants & Insects, 12
" " Old World, 139
Windsor Cherry, 275 [73, 339
Winter Bloom. & Bud. Roses,
" " Roses, Disease, 74
" Culture Mignonette, 339
" Evaporation in, 315
" Greenhouse Plants, 262
" Preserving Grapes, 271,
" Richmond, Ind., 215 [266
" Roses in, 359
" Water Cress in, 14
Wire and Hedges, 36, 162, 197
" Fences, Barbed, 101
Wonderful Tenacity Life, 149
Wood, Beech, 48
" Hardest Known, 366
" Quercus lobata, 147
" Rejuvenating an Old, 210
" Salix cordata var. vesta-
Woodcock Grape, 336 [ta, 49
Woods and Forests, 31
Worcester Co Hort. Soc., 155
Word about Moles, 195
Words about Tea, A few, 178
World's Fair, Hort. Dep't, 288
" " N. O., 159, 180, 192,
Worm, Canker, 204, 207, 240 [288
" Currant, 240
" Peach, 179 [stroy, 45, 47
Worms, Cabbage, &c., To De-
Worn Out Hose, Use, 355
Wounds in Trees, Paint'g, 294
Writing in Mail Packages, 355
Xylinacantha macrantha, 267
Yellow & White Broom, 356
" Dock as Food, 275
" Pine, Rapid Growth,
" Verbena, 253 [288
" Wood, Sugar from, 183
Yellows, Cure for, 306
" First Appearance, 94
" Peach and Bacteria, 85
" Potash for, 181
Yellowstone Nat'l Park, 191
Yield, Apples, Heavy, 365
Young Century Plants, 43
Yucca Fertilization, 281
" for Tanning, 315
Zygadenus venenosus, 21
Zygophyllum sedeni, 120, 121, 151



3 2044 073 570 277

DUE AUG 29 32